

1-1-1973

The effects of contingent praise and token reinforcement on the classroom behavior of emotionally disturbed primary students.

William George Selig
University of Massachusetts Amherst

Follow this and additional works at: https://scholarworks.umass.edu/dissertations_1

Recommended Citation

Selig, William George, "The effects of contingent praise and token reinforcement on the classroom behavior of emotionally disturbed primary students." (1973). *Doctoral Dissertations 1896 - February 2014*. 2783.
https://scholarworks.umass.edu/dissertations_1/2783

This Open Access Dissertation is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Doctoral Dissertations 1896 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.



UMASS/AMHERST

312066 0296 6064 3

**FIVE COLLEGE
DEPOSITORY**

THE EFFECTS OF CONTINGENT PRAISE AND TOKEN
REINFORCEMENT ON THE CLASSROOM BEHAVIOR
OF EMOTIONALLY DISTURBED
PRIMARY STUDENTS

A dissertation

by

WILLIAM GEORGE SELIG

Submitted to the Graduate School of the
University of Massachusetts in partial
fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

APRIL 1973

Major Subject: Education

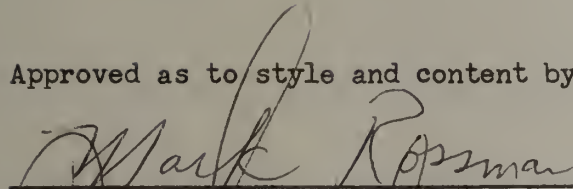
THE EFFECTS OF CONTINGENT PRAISE AND TOKEN
REINFORCEMENT ON THE CLASSROOM BEHAVIOR
OF EMOTIONALLY DISTURBED
PRIMARY STUDENTS

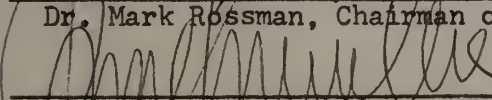
A Dissertation

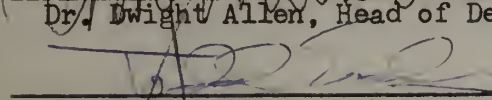
by

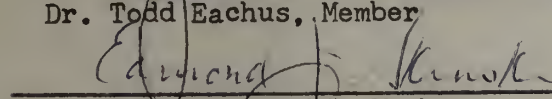
WILLIAM GEORGE SELIG

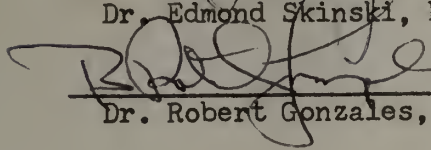
Approved as to style and content by:


Dr. Mark Rossman, Chairman of Committee


Dr. Dwight Allen, Head of Department


Dr. Todd Eachus, Member


Dr. Edmond Skinski, Member


Dr. Robert Gonzales, Member

April 1973

ACKNOWLEDGMENTS

To my wife, my mother and Dr. Dohn Miller, I offer my effort here. Without the love, faith, encouragement and direction of any one of these special people none of this could be possible.

To Dr. Mark Rossman I would like to convey my sincere appreciation for the guidance and the very personal support he extended during my program at the University. The invaluable assistance and direction of Dr. Todd Eachus in the writing of this dissertation is also deeply appreciated and I believe it fair to say that he has indeed "shaped another behaviorist." To Dr. Edmond Skinski I extend a heartfelt "thank you" for his interest and efforts on my behalf.

Finally to my daughters Cheryl and Cynthia I would like to express my deep love for they have given my work true purpose.

ABSTRACT

An experiment was conducted in which the effects of behavior modification on the disruptive behavior of five emotionally disturbed students in grades one and two was assessed. Volunteer aides were trained to implement and control the study. There were six experimental phases: Baseline, Praise and Ignore Reinforcement, Token Reinforcement, No Consequence, Praise and Ignore Reinforcement and Token Reinforcement. The token reinforcement phases were used for only one student as the praise and ignore procedures were sufficiently successful for the other four. The praise and ignore system was used to consequence appropriate behavior as established by the classroom rules set forth by the teacher at the beginning of the experiment. The token economy system was established by using tokens and praise to consequence appropriate behavior. At the end of the observation sessions the tokens could be exchanged for objects which were chosen by the student. The results of the experiment demonstrate that effective control was established over the behavior of the students. The instatement of praise and ignore reinforcement and token reinforcement as consequences for appropriate behavior established and maintained high response rates and low levels of disruptive behavior. Reversal of the effects was obtained through withdrawal of the consequences and later reinstatement. The experiment provided a basis for considering the techniques employed as a possible alternative for present practices utilized in dealing with Emotionally Disturbed Students.

TABLE OF CONTENTS

CHAPTER		Pages
I	INTRODUCTION	
	Emotionally Disturbed	2
	Behavior Modification	3
	Critical Issues	16
	Design Rationale	18
	Experimental Objectives	19
II	METHOD	
	Subject	21
	Apparatus	26
	Procedure	29
III	RESULTS	
	Interobserver Reliability	38
	Rate of Disruptive Behavior	42
	Teacher Behavior	69
IV	DISCUSSION	
	Changes in Children	80
	Teacher Reactions	83
	Other Variables	85
	Implications	86

LIST OF TABLES

		Page
Table 1	Toys, Experiences, Items and Games Chosen For Use as Salient Reinforcers	28
Table 2	Praise Phrases Which Can Be Used as Salient Reinforcement	35
Table 3	Average Inter-Observer Reliabilities During Each Phase	39
Table 4	Average Rate of Disruptive Behaviors Per Minute For George	47
Table 5	Average Rate of Disruptive Behaviors Per Minute For Chris	52
Table 6	Average Rate of Disruptive Behaviors Per Minute For Karl	56
Table 7	Average Rate of Disruptive Behaviors Per Minute For Danny	63
Table 8	Average Rate of Disruptive Behaviors Per Minute For Linda	68
Table 9	Average Teacher Contact Per Minute For George	73
Table 10	Average Teacher Contact Per Minute For Chris	74
Table 11	Average Teacher Contact Per Minute For Karl	75
Table 12	Average Teacher Contact Per Minute For Danny	76
Table 13	Average Teacher Contact Per Minute For Linda	77

LIST OF FIGURES

	Page
Figure 1 Rate of Disruptive Behaviors Per Minute For George	46
Figure 2 Rate of Disruptive Behaviors Per Minute For Chris	51
Figure 3 Rate of Disruptive Behaviors Per Minute For Karl	55
Figure 4 Rate of Disruptive Behaviors Per Minute For Danny	62
Figure 5 Rate of Disruptive Behaviors Per Minute For Linda	67

CHAPTER I

INTRODUCTION

Historically the burden of meeting the needs of emotionally disturbed children has not been assumed by the educator. These problems have been presumed to fall outside the province of the classroom and the school and have been assigned to a variety of public and private treatment modes (Hewett, 1968).

Within recent years the public schools have begun to reevaluate their traditional attitudes toward emotionally disturbed children. This gradually emerging, but persistent shift in view has come about for a number of reasons. Traditional non-public school treatment facilities have been unable to provide satisfactory solutions to the problem of emotionally disturbed children. Thus, pressures in and on the public schools have not abated by virtue of increased referrals of public school children to outside agencies (Cowen, Gardner and Zax, 1967). There has been additional stimulation from educational and psychological theory which advocates not only that practical considerations make it imperative that the schools come to grips with this social and educational problem, but that solutions within an educational context have theoretical validity (Bower, 1961; Caplan, 1961; Hewett, 1968; Morse, 1966).

While public school approaches to the issue have been varied, the special class has represented a common, yet uncomplete solution, which when investigated, has been found not significantly different from regular classes in classroom processes, despite rapid advancement

in theory (Morse, Cutler and Fink, 1964).

Recent research seems to indicate that improvement generated by special class seems to disappear when the pupil returns to the mainstream (Morse, 1969). Morse also points out in his article "Disturbed Youngsters in the Classroom" that less than 3 per cent of all emotionally disturbed children have the opportunity to avail themselves of the questionable benefits of a special program or class. The intent here is to provide one feasible, additional alternative to present programs and to provide a successful means of expanding services to emotionally disturbed children in regular classrooms. This experiment was designed to investigate the effects of the utilization of systematic behavior modification principles on the disruptive behavior of emotionally disturbed children in regular 1st and 2nd grades.

Emotionally Disturbed

The definition of the "emotionally disturbed child" presents almost as many problems as the definition of "normality" (Engel, 1964). To some it implies a child who is psychiatrically ill and a victim of deep seated emotional conflicts which necessitate psychotherapy for resolution. To others it implies the presence of a hidden minimal organic defect which accounts for the hyperactivity, poor concentration and oversensitivity to stimuli seen in some emotionally disturbed children. Such approaches search for underlying casual factors and view the child first in a psychiatric or medical context and only secondly as

an educational problem (Hewett, 1968).

According to Hewett the emotionally disturbed child is a socialization failure. Underlying all the specialized terms and complex diagnostic labels used to describe him, is the implication that his behavior for whatever reason is maladaptive according to the expectations of society in which he lives (Hewett, 1968).

The term emotional disturbance is used only because of its widespread acceptance and usage in describing children who are inattentive, withdrawn, aggressive, non-conforming, disorganized, immature, and unable to get along with others.

Behavior Modification

Recent investigations of education-literature that has appeared indicates increasing emphasis upon the application of behavior modification principles in classroom environments. Environment events affect and determine the occurrences of behavior at a specific time, place, and set of conditions (Whelan and Gallagher, 1969), and usually function to increase or decrease specific behavior frequency. Behavior principles, therefore, refer to the connective relationship between behavior and environmental events (Skinner, 1967). Behavior principles according to (Skinner, 1953) are used to analyze, in a functional manner, the frequency of behavior that is directly observable and measurable and those environmental events that occur immediately before and after behavior. Before reviewing various behavior modification studies, some basic rationale

relevant to behavior modification is stipulated in order to provide a general perspective, and to provide an awareness of the importance of providing systematic procedures for application to help children increase appropriate behavior and decrease self debilitating behavior.

In successfully applying behavior modification, one must have an understanding of three highly important factors (Haring & Phillips, 1972). They are reinforcement, shaping and contingency. Reinforcement can be either positive or negative. A positive reinforcement follows an event and increases the likelihood that that event will be repeated in the future. Any event can positively reinforce another event if the former event is more likely to occur than the latter (Premack, 1959). Negative reinforcement is the type that appears most often in ordinary classrooms. A response is emitted to effect the removal of a real or threatened aversive event.

A second factor of equal importance is shaping. Shaping is the reinforcement of successive approximations to a desired behavior until ultimately the desired behavior occurs and can be reinforced. Shaping procedures must be carefully planned. The terminal behavior must be defined and the approximations must be reinforced. Shaping procedures work because during shaping, reinforcement not only strengthens the particular response that is reinforced, but also increases the likelihood that a close approximation will occur (Reese, 1966).

Contingency management is the basis of behavior modification procedures. What happens after the child has done an arithmetic problem? Is he praised, ignored, or punished? The event that occurs after the child's response is said to be contingent on that response. The term

Contingent implies that there is a relationship between what the child does and what happens afterward, a relationship that is resultant rather than merely temporal (Haring & Phillips, 1972). Our salaries are contingent on job performance. A doctor's diploma is contingent on completion of a course of study. The praise we receive from our friends and relatives is gratifying enough for most of us to keep on making the appropriate responses in order to insure its continuation. The contingencies of our environment then, control our behavior and can predictably influence our responses. To be effective, one must also be consistent and systematic for in any situation in which accidental contingencies are operating, the net result may simply be an accentuation of a response already dominant (Hernstein, 1966).

Behavior modification principles have been used in many classrooms to achieve appropriate behavior. The implementation of these principles has taken many forms as is evident from the following review of experiments which have been undertaken in the field of behavior modification.

Strict observational criteria have been set up and observed in carrying out the experiment. Hall, Panyon, Rabon, and Broden (1968) working with sixth graders had the teachers increase their positive comments. At the beginning of the study, and before implementation of any new contingencies, a sample of the study behavior was taken. This beginning sample is called the baseline behavior and represents a summation of all specified behaviors occurring during the allotted time for studying. In this case, study behaviors occurred 8 per cent of the time.

After increasing the amount of positive comments given by the teacher the amount of study increased to 76 per cent. When negative comments were stopped altogether, the study rate still held at 76 per cent. The negative comments apparently were not necessary. Study behavior had increased from less than half to over three fourths of the time merely by increasing the amount to positive attention by the teacher. With first graders, study increased from 51 to 63 per cent of the time by increasing positive comments and adding other reinforcements (a study game), the teacher increased study to a 76 per cent level.

Peterson, Cox, and Bijou (1971) worked with pre-schoolers. The study rate ranged from 22 to 43 per cent in the baseline and rose to 90 per cent. This rate was achieved by increasing praise and giving a star for specified appropriate behavior. In this study daily programs were structured so that praise and stars were given out in the same amounts that previously resulted in the 90 per cent level but were given on a non-contingent basis. During this period study rate dropped to a level below that of the baseline rate. The experimentors suggested that the results show the necessity for contingent reinforcement.

In a converse condition two experiments seem to indicate that negative attention given to undesirable behavior only served to increase that type of behavior. Thomas, Becker, and Armstrong (1968) designed their experiment to test the effects of a punishment oriented control system. In the baseline, disruptive behavior was a low 8.7 per cent. After the baseline observation period, the teacher stopped giving approval for desired behavior. With no approval given for desired behavior, disruptive behavior increased to 25.5 per cent. Approval was reinstated and

disrupted behavior decreased to 12.9 per cent. Again the approval was discontinued and additionally disapproval of disruptive behavior was increased. Under this condition, disruptive behavior increased to 31.2 per cent (over three times higher than normal). With a return of the approval condition, 75 per cent of the students improved within two weeks. An experiment by Madsen, et al. (1967) was cited which found that only praising a desired behavior, in this case sitting, increased the behavior. Negative remarks about being out of one's seat only served to increase the out-of-seat behavior.

Some teachers may feel that too much additional time will be taken up if teachers have to take time to increase the amount of praise that they give to their children. Ward and Baker (1968) found that by reinforcing positive and ignoring negative behavior, the undesirable behavior lessened to a significant degree and the total amount of teacher attention did not change. McAllister, et al. (1969) found that although the teacher felt it took more time initially to implement the program, eventually the time it saved from negative interaction was greater.

In an experiment by Hall, Lund, and Jackson (1968), in which daily feedback of performance was felt to be an important factor to success, the minimum improvement in study behavior of one student was from 68 to 85 per cent. All six students reached a minimum study level of 70 per cent with three of the children improving their study time nearly 40 per cent. One of them achieved a 55 per cent improvement by rising from a 25 to an 80 per cent study level. The teacher of the class noted an improvement in the class attitude while grades also improved for some students.

Wasik, et al. (1969) used contingent praise and time-out, which was a 5 minute removal from the room, to maintain desired behavior in two culturally deprived students who had previously been very erratic in their behavior patterns. The desirable behavior was being maintained when checked three months later. In an experiment by Hall, et al. (1968) a teacher increased the study rate of her class from 44 per cent to 76 per cent by increasing her attention to study behavior. She did this by increasing her positive comments from 1.4 per half hour to 14.6 per half-hour. She then decreased her negative comments from 12 to 4.5 during the same time span and the study rate did not change. From this study it appears that the increase of positive comments was the determining factor.

Hall, et al. (1971) found that teachers using wrist counters to record positive and negative attention could carry out successful experimentation by themselves and could successfully modify behavior using positive reinforcement. Using this system, Zimmerman & Zimmerman (1962) working with institutionalized emotionally disturbed children demonstrated the importance of consistency and attention. A child who regularly threw temper tantrums was also attending classes taught by one of the Zimmermans. In the classroom, these tantrums were ignored and only desired behavior was reinforced with teacher attention. This child ceased his tantrums in the class while still maintaining them elsewhere in the institution where he was able to get attention for them. This example indicates how attention can either maintain undesirable behavior or eliminate it.

In the event that social reinforcement proves to be ineffective for some children, behavior modification principles allow for the

use of alternate methods utilizing the same basic procedures but utilizing tangible reinforcement along with social reinforcement. This method is referred to as the token system. In a token system, the teacher gives check marks or points, along with praise, for desired behavior and these points are later exchanged for toys, candy, etc. In this way, the teacher is linking her praise with positive reinforcers so that eventually her praise alone will become reinforcing. Token systems have been used for many experiments. O'Leary, et al. (1969), found that praise and ignore techniques didn't work. During part of the day, they used tokens which could later be exchanged for candy, prizes, etc. This system significantly reduced disruptive behavior during the token periods but did not generalize to other parts of the day. Praising and ignoring were found to be ineffective, but praising of positive behavior was administered inconsistently throughout the day. Also, time-outs were not used and disruptive behavior did receive attention. The two factors of consistency and attention have previously been demonstrated to be vital to the effectiveness of the praising and ignoring and their misuse by the teacher could easily have caused the failure.

Thomas, et al. (1968) worked with a six year old boy and found that a high approval situation (praise on an average of once a minute for desired behavior) resulted in a 36.5 per cent reduction in disruptive behavior. Introduction of tokens dropped disruptive behavior another 17.6 to 33.4 per cent. A general improvement in the child's attitude toward school was noted near the end of the experiment and the follow-up done a few weeks later showed that the disruptive behavior

had dropped to only 11 per cent. Originally it was 87 per cent. It was the opinion of the experimentors that the high praise condition was of insufficient time to determine effects since the disruptive behavior under high approval condition was still in a transition state when the new contingencies were added.

Several experiments were designed to find out whether group contingencies or individual contingencies would be more effective. In one experiment, (Packard 1970) working with 3rd, 5th, and 6th graders and using a light to indicate lack of attention (to work, teacher, etc.) raised the classroom attention to 80 per cent by giving points for attention which later were exchanged for privileges and desired activities. In two dissertation experiments, Andrews (1971) found group contingencies for gaining free time were effective with Junior High students while Sympson (1970) found no significant difference between the effectiveness of group vs. individual contingencies. In working with head-start preschoolers, Herman and Tremontana (1971) also found that individual and group reinforcers were equally effective as they brought deviant behavior down to a 4 per cent level.

Schmidt and Ulrich (1969) found however that group contingencies were not effective for all students and found that individual contingencies had to be added in some cases. In their study, a whistle sounded if the noise level went too high. The Token System was able to be gradually faded away with no increase in noise. In this study, the combination of individual and group reinforcers had proven effective.

Barris, Saunders, and Wolf (1969) used the concept of a game to try to control out-of-seat and talking-out behaviors on a group

basis with 4th graders. The class was divided into two teams and each tried to be quiet and only out of their seats when permission was given. A check mark was given to a team when one of its members spoke out or was out of his seat. The team with the lowest total won. The reinforcement for the winning team was being first in line for recess, lunch, etc. (these reinforcers seem to be effective for many children). During this game, talking-out and out-of-seat behavior dropped from means of 96 per cent and 82 per cent respectively to a mutual mean of 25 per cent. Over a 50 per cent reduction in these undesirable behaviors occurred in both cases. Two children had some problems and one had to be completely eliminated from game participation. For these children, some type of individual contingency or another type of reinforcer may be called for. One type of reinforcer may not be a reinforcer for everyone.

A token system was utilized by Dyer (1968), to improve the social and academic behavior of a twelve year old emotionally disturbed girl. In his experiment Dyer discovered that tokens were successful in improving the social behavior but had no noticeable effect on the academic behavior. By utilizing a more primary reinforcer, in this case sweets, it was possible to achieve the desired academic behavior also. The experimenter concluded in the experiment that the principle of finding what is reinforcing and utilizing it effectively is basic to the success of any behavioral program.

Additional support can be found in an experiment by Glavin, Quay, and Werry (1971) in which they spent a year trying to eliminate deviant behavior while working on a one-to-one basis. The second year they switched to concentrating on academic gains using a token system

with group activities. Points and praise were given for starting work, working, and extra points were given for delaying gratification. Restraining gestures, time-out, and trips to the program director's office were used to allow students to dissipate anger. As a result of this program, deviant behavior decreased, attention increased and academic improvement was greater in the third year than that of the two previous years combined. The most positive result of this experiment was that under this successful system, the teachers were still giving the same amount of attention to the students as they had under the other system. It had not been more time consuming to implement this system.

O'Leary and Becker (1967) successfully implemented a similar token system where nine year old emotionally disturbed children worked for prizes. The children's deviant behavior decreased from a 76 per cent occurrence rate to a desirable 10 per cent. A decrease was achieved by combining daily instructions as to desirable behavior with the token system. The children were also able to delay the reinforcement four days and still maintain desirable behavior. The ability to postpone reinforcement is usually considered a sign of social and emotional growth. In this study also, the teachers found that they had more over-all time than with their other methods. Additionally, several children said that next year they would be old enough to work without the prizes. The authors interpreted this as further signs of improvement.

In addition to the elimination of disruptive behaviors the token system has also proven effective in improving academic behavior. This has been measured by checking the successful work completion

record. If a child with the help of a token system can control himself enough to work up to the level of regular students, a factor whose previous non-existence may have been one of the major causes of his being placed in a special class, then he may now be ready and able to rejoin the normal class. Staats et al. (1967), working on a one-to-one basis with 7th and 8th grade emotionally disturbed and mentally retarded children, found that teachers were able to gradually increase the work load of the students while the reinforcement, in this case a stipend of 20¢ a day, was kept constant. Using an intermittent reinforcement schedule the work attention level on the part of the children remained high. The gradual fading of the rewards did not adversely affect the maintenance of desired behavior.

The most significant result was discovered in the experiment by Staats et al. One student was doing less academic work. When observed, it was noticed that his tutor was saying phrases like "you can do better." This type of comment with some children can apparently be detrimental, for when a new tutor replaced the original tutor, this child began to improve along with the others in the study. Reinforcing comments such as "you are doing a good job," or "you have made quite an improvement" have been found to be very effective in increasing performance without adding any subtle pressure. Positive remarks (praise) may serve to give a sense of satisfaction rather than a sense of inadequacy. After all, saying "you could do better" is another way of saying "you aren't doing so well." It may seem like a small difference, but this apparent subtle difference can seemingly have a decisive effect.

Almost all of the Token Experiments have been undertaken with younger children in grade school settings. Thus, when viewing the results of experiments dealing with adolescents it was necessary to be aware of program modifications such as, additional teacher/pupil collaboration on contingencies.

In one group of special education students in the 7th and 8th grades, use of contingent praise improved study behavior from a 29 per cent to a 57 per cent level of all measured behaviors Broden,et al. (1970). When tokens were given which earned an early lunch, study rose to 74 per cent. Adding negative tokens increased study to 83 per cent. Initially three students refused to take part. Two of these students returned to the experiment quickly but the third required a time out period. He returned to the experiment the following day. In one experiment Lovitt and Curtiss (1969) done with a 12 year old boy who had been on a token system before, the boy worked best when he had set up his own contingencies. In the Broden,et al. study, the teacher expressed the feeling that allowing the students to help modify the program had helped them to accept it.

Martin, et al. (1968) concurred when conducting a similar token program with students in a 13 to 18 age group who had been put in a homebound schooling situation because of their undesirable behavior. Only two of the students had responded to a token system, therefore, a phase system was initiated which was in fact a more complicated token system. This was a contingency based progression system in which earning of admission to higher phases resulted in the granting of more privileges and more social rewards. This phase system corresponded to

the phases in development of social and emotional growth mentioned in an article by Hewitt (1967). Four out of the five students in this program improved steadily while the fifth showed erratic improvement. A progress check found that four out of the five were in regular schools and were functioning adequately. The authors have suggested that perhaps this type of long-term progressive view is necessary for students who have reached an age where their time conception is expanded while their social development is lagging behind.

In an impressive experiment by Clark, Lachowicz, and Wolf (1968), the subjects were school drop-outs who took part in a special token program class where they earned points which they later exchanged for a wage like sum of money. The group which attended the class all day showed a 1.3 year improvement on various academic tests. The second group, consisting of five girls who went to school in the mornings and worked in the afternoons showed a two year improvement on the academic tests. The authors considered the evidence impressive when they considered the fact that these gains occurred after only two months on the program.

It is apparent from the review of the preceding experiments that behavior modification has had wide application in a variety of settings. Because of the success of behavioral principles in controlled school settings it is reasonable to assume that these principles can be successfully utilized in regular school settings. However, before such application occurs it is necessary to examine some of the issues involved in their application.

Critical Issues

Behavior modification has had an undeniable impact on the field of psychology: relevant aspects are rapidly finding their way into other fields such as education, sociology, and medicine. In view of its prominence and its proponents frequent confrontation, and open disputes with theorists representing other positions, it is not surprising that several controversial points about behavior modification have arisen and have been publicized by those professionals who are theoretically opposed to it.

Rachmen (1963) has generally concluded that the major objection to behavior modification with the emotionally disturbed is that it is superficial, that it is symptom oriented and does not give adequate consideration to the underlying or inner causes of the neuroses relevant to the problem behaviors, that it produces only temporary benefits, and that in eliminating certain problems or symptoms it provokes new ones. In general it would appear that major issues are: Whether behavior modification thoroughly eliminates the problem behaviors, an issue relevant to symptom substitution and permanence of benefits; and the justification for the philosophical concomitants of an approach that allows the investigator to make the decisions as to what are "right" and "wrong" behaviors.

Psychanalytic theorists, in order to support their beliefs about the development of problem behaviors, have maintained their concept of symptom substitution. Such differences revolve around the behaviorists' theory on the development of problem behaviors: the latter maintains

that unless the problem behaviors are relearned, the elimination of the problem will be permanent (Wolpe, 1964). Through theoretical intricacies, it might be feasible to derive a basis for transfer of symptoms or symptom substitution; but in general behaviorists believe that this possibility has been greatly exaggerated (Lazarus, 1965; Rachmen, 1963; Wolpe, 1958). It seems that the few cases of "symptom substitution" that are available are so designated more by the theoretical orientation of the diagnostician than by undeniable data (Hilgard, 1965). In summary then, the controversy of symptom substitution appears to have little empirical evidence to support the belief that treatment by behavior modification results in symptom substitution.

The second controversial issue that should be considered is the philosophical concomitants of an approach that allows one individual to make the decisions as to what are "right" and "wrong" behaviors. Opponents of behaviorism (London, 1964) state that creativity of an individual is an essential for a productive person and society necessitates individual freedom to explore, try and develop thoughts, feelings, ideas and behaviors. They allege that behaviorism might be the first in a series of steps toward forcing individual conformity to socially accepted behaviors and denying the person the right to individuality of thinking, feeling and behaving.

In defense of their position behaviorists maintain that mass human cybernetics is not the purpose of behaviorism, quite the contrary, the purpose is to help the person achieve the behavioral state that he desires, and to do so by the most effective means (Woody, 1968).

To summarize, it is apparent that behaviorism can accord as

much respect to the individual as any other theoretical approach; such respect is the function of the investigator not the theory.

Design Rationale

Sidman (1960) considers obtaining a baseline measurement of performance as a prerequisite to any manipulative study. "Manipulation of new variables will often produce behavioral changes, but in order to describe the changes we must be able to specify the baseline from which they occurred; otherwise we may find insolvable problems of control, measurement and generality [p. 238] ." Baseline measurements are valid response data because the responses are measured directly and the measurement is continuous during a time when variables are held constant. Sidman requires a true baseline to be a steady state, one that "does not change its characteristics over a period of time [1960, p. 234] ."

The value of the response rate lies in its sensitivity to changing conditions. Not only does it show the effect of changed condition on behavior, but when the rate is examined, it is possible to obtain a pattern of correct and incorrect responses under different conditions, thus providing a much more satisfactory tool for analysis of individual behavior than statistical analysis. Perhaps what is most important is that the response rate enables the investigator to compare performances made by the same individual at different times regardless of the response period so long as the responses are comparable.

"Variables that might be dismissed as having little or no effect when group comparison are made, may prove to be extremely powerful

when evaluated against a stable individual baseline. Inter-subject variability is not a feature of behavior process and when such variability is included in the measurement of presumed individual processes, the resolving power of the measures is inevitably sacrificed [Sidman, 1960, pp. 240-241] ."

Experimental Objectives

Currently in the field of special education it seems that we are struggling daily to provide service for an overwhelming number of youngsters. A sizeable number of these youngsters are classified as emotionally disturbed. In the past when we have provided services, they have almost invariably utilized a remedial approach based on the idea that these students were also academically retarded. Recent research (Graubard, 1971) points out that most emotionally disturbed students in the lower grades are not in fact academically retarded and do not need a remedial approach. It should be pointed out, however, that if the emotional condition remains untreated for a number of years, subtle academic lags begin to appear.

The purpose of this experiment was to reduce the disruptive behavior of emotionally disturbed students through the systematic application of behavior modification principles and to provide a viable alternative to present programs for dealing with the emotionally disturbed. Madsen, et al. (1968) undertook an experiment of similar design. However, in that experiment graduate students were employed to implement and control the experimental conditions. The practice of using paid graduate students, while both effective and efficient, is

too expensive for most public school programs and therefore did not provide a viable alternative to present programs.

C H A P T E R I I

M E T H O D

Subjects

A small elementary school of 200 students in a Western Massachusetts Community of approximately 30,000 was chosen as the site for the experimentation. Initial discussion of the research and the procedures to be followed were held with the administrative officers of the school system and the teachers who were chosen to take part in the study. The first and second grade at the elementary school are organized on a developmental basis as determined by teacher anecdotal notes and the "Pupil Record of Educational Behavior," (a formalized inventory developed by Teaching Resources, Inc.) for determination of academic developmental levels. The developmental type of organization requires a good deal of actual class and teacher movement in order to achieve proper instructional grouping. There are four teachers and fifty children in the program. One of the teachers functions as a resource teacher and therefore, has no full time class responsibility.

The subjects were chosen from the program described above. The process for choosing each of the five subjects began with a referral for formal evaluation from their classroom teacher because of the students' disruptive classroom behavior. The educational evaluation was conducted by an educational specialist who determined each student's functional educational level through the use of standardized instruments which included the Wide Range Achievement Test, The Illinois Test of Psycholinguistic Abilities, The Visual Motor

Integration Test and the Slosson Reading Test. The intellectual evaluation was conducted by a qualified psychologist who administered the Wechsler Intelligence Scale for Children and the Social and Emotional evaluation was conducted by a State approved child psychiatrist who observed the children in the context of a personal interview and made his diagnosis and recommendation. The evaluation of each of the five subjects resulted in a psychiatric diagnosis of emotional disturbance, thereby qualifying them for the study.

Subject No. 1 - George

George was described by his teacher as an extremely bright young boy who was very capable academically when he chose to be. The teacher stated that he refused to do most academic work and chose instead to play with objects on his desk or with articles of clothing. He was extremely aggressive toward other children and could not pass their desks without hitting them, taking their belongings or making improper comments. The teacher felt that it was impossible for her to have George take part in group activities because he was so disruptive.

The formal evaluation summary conducted by the psychologist, psychiatrist and educational specialist indicated that George appeared to be a bright six year, nine month old male in the second grade with a tested Intelligence Quotient of 126. The psychiatrist's portion of the assessment described George as being hyperactive, negative and aggressive. The formal diagnosis of the psychiatrist for George was "Adjustment Reaction of Childhood." He stated the problem was a

direct result of the home environment, but since the family was resistant to receiving professional help it would be necessary to deal with George in the school setting using an approach which would spell out specifically to George the type of behavior which the teacher required. He also recommended that if George's behavior became intolerable to her she should remove him from the room for short periods of time. It was also indicated by the psychiatrist that efforts should be made by the teacher to find frequent opportunities to praise George for acceptable behavior.

Subject No. 2 - Chris

The teacher's description of Chris was that he was extremely distractable, fidgety and very self-centered. She explained that Chris was oblivious to what went on in the classroom and would do only those things which were of immediate interest to him. The teacher states that Chris employed many avoidance techniques which seemed to put him out of her reach in terms of discipline or academics.

The formal evaluation conducted by the psychiatrist, psychologist and educational specialist, found Chris to be within the average range of intelligence with an Intellectual Quotient of 89. It was felt by the psychologist that Chris's scores were somewhat depressed because of his emotional condition. Chris, who was six years, two months old and in the first grade was capable of doing average academic work as indicated by a tested achievement level on the Wide Range Achievement Test of first grade, first month. The psychiatrist's social and emotional assessment indicated that Chris was manipulative, disruptive, spoiled

and hyperactive. His official diagnosis was Unpatterned Unsocialized Reaction of Childhood. Chris's family situation is extremely unstructured with a father who is away in the service and a mother who inconsistently resorts to extreme punishment in an attempt to control Chris's behavior. The mother had been scheduled to receive counselling, but had neglected to keep any of her appointments. The recommendations for Chris called for counselling which would focus on helping him develop appropriate ways to relieve his aggression and the setting of specific classroom limits which could be consistently enforced through reward and punishment.

Subject No. 3 - Karl

The teacher's description of Karl stated that his behavior varied from one extreme to another. Frequently he vacillated between being extremely tense and anxious and then being very silly. During his periods of silliness the teacher stated that he frequently disrupted the class by laughing, whistling and pestering the other children.

The formal evaluation summary conducted by the psychiatrist, psychologist and educational specialist described Karl as a six year, nine month old second grade boy who, according to his tested achievement level on the Wide Range Achievement Test was performing at grade level which was first grade, second month. The psychologist stated that Karl was of average intelligence with an Intelligence Quotient of 98. The psychiatrist indicated that Karl was extremely insecure and in his attempt to protect himself he had become extremely manipulative.

The psychiatrist's diagnosis of Karl was an Unsocialized Aggressive Reaction of Childhood. The recommendations for Karl called for counselling which would be for the purpose of providing the boy with an ongoing and consistent behavior model hopefully providing the affection Karl needed. It was also recommended that the teacher attempt to deal with Karl by overlooking his bad behavior and paying attention to him when he was doing the things which were acceptable in the classroom.

Subject No. 4 - Danny

Danny was described by his teacher as extremely aggressive. She stated that he attempted to take over every situation and was angered if he was challenged in any way. According to his teacher his attention getting took the form of hitting, noise-making and tantrums.

The evaluation summary conducted by the psychiatrist, psychologist and educational specialist described Danny as a five year, ten month old first grader, who had exhibited a tested Intellectual Quotient of 93. Danny's tested achievement level was exactly first grade, no months which was below grade level, but was not statistically significant. It was the opinion of the educational specialist that it should not prevent him from being successful in the classroom. Danny's family situation is one of utter chaos with both the father and mother seemingly incapable of establishing limits for themselves or the children. Attempts have been made to work with the family in the past, but the family could not follow through with counselling. The psychiatrist diagnosed Danny as having an Unpatterned

Unsocialized Reaction of Childhood and recommended a highly structured class with precise limits and definite consequences for both obeying the rules and breaking them.

Subject No. 5 - Linda

According to her teacher, Linda is an extremely vivacious little girl, obedient with adults, but a terror with the other children. If she was not with an adult on an individual basis she became highly disruptive, hitting, kicking and not attending to her work. The teacher stated that it was becoming difficult to have her in the classroom as she was so malicious.

The evaluation summary stated that she was a six year, two month old girl in the first grade who has an Intellectual Quotient of 103. Her average academic achievement level tested at first grade, four month level. The psychiatric evaluation indicated that Linda has had a very difficult home situation and has now been placed permanently with her grandmother as a result of her mother's behavior. The mother, when under the influence of alcohol, would beat Linda severely and on occasion would cut her with a razor. The psychiatrist's diagnosis described Linda's behavior as Unpatterned Unsocialized Reaction of Childhood. The recommendations called for individual counselling and an extremely supportive classroom.

Apparatus

All treatments in this experiment were carried out in each student's classroom. No special equipment was necessary beyond a

stopwatch. The stopwatch was used for the purpose of insuring accuracy of the observer's time during rating sessions.

The token reinforcements necessary to modify disruptive behavior were provided by the examiner. (Table No. 1)

TABLE I

TOYS, EXPERIENCES, ITEMS AND GAMES CHOSEN FOR USE AS SALIENT REINFORCERS

Yo-Yos	Tea Set
Jigsaw Puzzles	Doctor Set
Field Trips	Nurse Set
Model Airplanes	Double Recess
Model Cars	Spirograph
Golden Books	Extra Art Period
Checkers	Paints and Brushes
Bingo	Extra Music Period
Extra Movie Privileges	Crayons
45 rpm Records	Coloring Books
Dolls	Scissors
Magnifying Glass	Notebook
Balls	Horse Back Riding
Hats	Milk Shake
Guns	Hamburger

Procedure

The primary dependent variable used was the rate of disruptive behavior observable in the classroom in each of the five subjects. The rate of response was plotted as a frequency distribution over time in terms of the amount of disruptive behavior emitted during each subject's observation session.

Consideration was given to the idea of establishing a multiple baseline approach by using appropriate academic behavior as an observable dependent variable. This idea, however, was rejected on the basis of Becker's (1967) study which indicated that since the correlation between reduction of disruptive behavior and increase of appropriate academic behavior was so high, it would be purposeless to run a separate baseline.

Ratings of teacher behavior were obtained to clarify relationships between changes in teacher behavior and changes in child behavior. The teacher's behavior was observed in terms of positive and negative contacts with the subjects. The observations on teacher behavior were run daily during each student's observation session.

Classroom Situation for Observing

The basic procedure used was to observe behavior in a task situation where the rules were clearly defined. Observations were held during individual academic seat work since these were the periods when rules were most clearly defined.

Observing Procedure

The observer seated himself close enough to the child to be able to attend to verbal responses and to view what he was doing on his desk without the observer making himself obtrusive. The observer did not directly interact with the child.

Each child was observed for 20 seconds and then the observer rested for 10 seconds during which time the appropriate symbols were entered in the cells on the score sheet. Behavior occurring during this 10 second period was not recorded. There were two observations per minute for a period of 15 minutes. Observations were split if an activity such as recess intervened during the time period. The scoring sheet consisted of 30 cells subdivided in half by a dotted horizontal line.

The experiment utilized the procedures devised by Werry and Quay (1969) to obtain the frequency count on disruptive classroom behavior. There were two classes of observation charted: disruptive behavior on a daily basis and teacher behavior in terms of negative or positive contact with the subjects. The teachers indicated that they have five basic rules which they attempt to enforce.

1. Ask teacher for permission to leave seat.
2. Raise hand before speaking.
3. Sit quietly while working.
4. Face the front of the room during work periods.
5. Clear desk of unnecessary articles before beginning work.

These rules fit very closely with the disruptive behavior described below.

Description of Disruptive Behaviors

Disruptive behavior is any behavior which contravenes explicit or implicit rules under which a class operates, (Werry and Quay, 1969). For the purpose of this experiment the following were considered disruptive behaviors. (The symbols to the side indicate the code for charting procedure).

Symbol and Description (example X - out of seat)

This was defined as any situation in which the normal seating surface of neither buttock was applied to the student's seat or in which there was movement of his desk or chair so that its ultimate stationary position was altered (thus swinging a seat on its axis or tilting a chair on its leg is excluded). Where the child was performing a permitted out of seat activity such as sharpening his pencil (after having gotten permission from the teacher) this was not marked as out of seat behavior except (a) when deviant behavior occurred during the permitted activity such as "side trips", looking at things on the teacher's desk, stopping to talk, etc., or (b) when the permitted activity was prolonged beyond a reasonable period of time or altered in some significant way.

Physical Contact Or Disturbing Others Directly

Any physical contact initiated or reciprocated between the

child under observation and another person independent of the intent of either child (aggression or affection). Included here were physical contact made with another person by means of an object such as a book held in hand or an object thrown, or some disturbance of another person or child by the subject in which there was contact not with the other's body, but rather with objects about him such as his work, his desk, etc. Examples: grabbing objects or work, knocking objects off another desk, destroying his property or pushing his desk.

N - - - - Audible Noise

Any non-vocal, non respiratory noise which was clearly audible, and which was not an integral part of a non-deviant activity. Examples: tapping a pencil, clapping, tapping feet, rattling or tearing papers, throwing papers, throwing a book on a desk, slamming a desk closed, etc.

90° Turn, Seated

A child had to be seated and the turn of the head and/or body had to pass a parallel position with the shoulders. Exception to this was when the child wished to attract the teacher's attention and turned, raising his hand to attract attention.

Vocalization - V

A vocalization or other respiratory noise, such as a whistle which was not task related and which was not physiological (this included normal cough or sneeze). Examples: answering teacher with-

out first raising hand, talking to others without permission, muttering obviously for an audience, swearing, etc. Not rated as V behavior was vocalization which was a direct response to the teacher's question or, in general, when a teacher was with the student except where the content of what was said was clearly deviant, such as stating refusal to do work, putting off obeying instructions, swearing, etc. Working out loud was not included.

Other Deviant Behavior

Included were behaviors which did not fit easily into a category above and also behaviors which were situational rather than absolutely disruptive. For example, engaging in a task other than that which is assigned (reading instead of doing arithmetic, drawing instead of reading, etc.). Included here also was day dreaming. The following were not considered deviant behaviors: playing with clothes, playing with self, chewing gum, playing with pencil in hand (all other pencil activities such as propping desk up with a pencil or taking a ballpoint pencil to pieces, stubbing the point heavily on wood, etc. was considered deviant).

Teacher Contact

Teacher was defined as any adult person who was interacting with the children rather than just observing them. Any contact between teacher and child whether initiated by child or by teacher was scored here. This included such obvious contacts as talking to the child, but also less obvious ones such as gesturing. It was permissible to have

only one teacher contact noted in a cell.

Symbol and Description

T	Teacher initiated contact (no instigation on part of child).
t	Child initiated (include both questions, etc., add teacher responding to disruptive behavior).
T and t	Positive contact (judged by what teacher did).
	Negative contact (note should not occur especially during experimental phase).

The five phases of the experiment are described below:

Phase I. (Baseline)

The classroom was conducted as usual with no new consequences for the reduction of disruptive behavior to be implemented. This period continued until a fairly stable condition became apparent.

Phase II. (Praise and Ignore)

In this phase all disruptive behavior was ignored unless it became physically dangerous. Teachers praised appropriate non-disruptive behavior frequently and within 15 seconds of their occurrence. The observer used hand signals when needed to direct teachers attention to appropriate behavior. See Table 2 for list of the suggested praise phrases (Kubany, 1972).

Phase III. (Token Reinforcement)

In the event that no reduction of disruptive behavior occurred

using the praise and ignore procedure, a token reinforcement program was instituted for the subject who required it. The token reinforcement system utilized chips which were presented to the student as a reward for non-disruptive behavior. These chips were presented in conjunction with a statement of praise. Chips were exchanged in the examiner's office for an item from Table No. 1 according to the chip's value. Chips were only exchanged at the end of each session. When a steady state of behavior had been achieved this phase was discontinued.

TABLE 2

PRAISE PHASES WHICH CAN BE USED AS SALIENT REINFORCEMENT

That's really nice.	I appreciate your help.
Thank you very much.	Very good. Why don't you show the Class?
Wow!	
That's great.	Thank you for (sitting down, being quiet, getting right to work, etc.).
I like the way you're working.	
Keep up the good work.	Marvelous.
Everyone's working so hard.	Groovy.
That's quite an improvement.	Right on.
Much better.	For sure.
Keep it up.	Sharp.
It's a pleasure to teach when you work like this.	That looks like it's going to be a great report.
Good job.	I like the way Tom is working.
What neat work.	My goodness, how impressive!
You really outdid yourself today.	You're on the right track now.
This kind of work pleases me very much.	That's "A" work.
	John is in line.

TABLE 2 (continued)

Congratulations. You only missed
_____.

That's right! Good for you.

Terrific.

I bet your Mom and Dad would be
proud to see the job you did on this.

Beautiful.

I'm very proud of the way you
worked (are working) today.

Excellent work.

Now you've figured it out.

Clifford has it.

That's the right answer.

Now you've got the hang of it.

Exactly right.

Super.

Superior work.

That's a good point.

That's a very good observation.

That certainly is one way of looking
at it.

I like the way Bill(the class)has
settled down.

Mary is waiting Quietly.

Dickie got right down to work

Ann is paying attention.

It looks like you put a lot of
work into this.

That's clever.

Very creative.

Very interesting.

Good thinking.

That's an interesting way of
looking at it.

That's an interesting point
of view.

Thank you for raising your
hand, Charles. What is it?

Sherrie is really going to
town.

You've got it now.

Out of sight.

Nice going.

Far out.

You make it look easy.

That's coming along nicely.

Phase IV. (No Consequation)

Reinforcement was terminated in this phase and an attempt was made to return the subjects to their original baseline. Teachers were asked to return to their previous methods.

Phase V. (Praise and Ignore)

Phase two was reinstituted to complete the demonstration of reversal of the effects of no consequation. This phase provided convincing evidence of the adequacy of the methodology.

Phase VI. (Token Reinforcement)

This phase was instituted for the subject needing token reinforcement in order to complete the reversal of the effects of no consequation for this subject.

No particular number of sessions were chosen for the length of a given experimental phase. Judgments of when disruptive behavior is stable in a phase and when to begin a new phase was made on the basis of a daily inspection of the data from the dependent variable.

Training

Observers were obtained from the volunteer aides already working in the school system who had expressed an interest in becoming better trained and more knowledgeable in the area of Special Education. The observers along with the teachers were required to read the first section of "Teaching A Course in Psychology" by

Thomas, Becker, and Engleman. There were group discussions of the material in the section along with discussion of the behavior of the various children in the study. The admission ticket to each session were the written answers to the questions at the end of each chapter. Each participant was given an individual resume of the material covered to date and the examiner also tried to relate the material to examples in the school. Each session closed with a short quiz on the material covered in the previous sessions. Questions that were answered incorrectly were discussed immediately. Social praise was used extensively by the examiner to reward appropriate comments.

Reliability

When the observers and teachers had mastered the material in the training sessions to the satisfaction of the examiner they were taught the rating procedure described on the previous pages. The observers and teachers met in the examiner's office and viewed video tape sessions of the classes in which the subjects were enrolled. They charted the disruptive behavior of the subjects from the video tape and were expected to achieve a reliability factor of 80 per cent before actual baseline was begun. This figure was achieved by having the observers work in pairs and then, at the end of a fifteen minute session, discuss, compare and examine their reliability category by category. Reliability was obtained by dividing the larger estimate into the smaller.

CHAPTER III

RESULTS

Results will be presented in three sub-sections treating inter-observer reliability and then the dependent variable, rate of disruptive behavior. The third sub-section will be the treatment of teacher behavior.

Interobserver Reliability

The reliabilities of child observations for each subject was calculated according to the procedures discussed in Section II. Reliability checks were conducted in each phase with the following results:

Phase I. (Baseline)

Subject No. 1 was observed for a reliability check seven times. During this period the average inter-observer reliability ranged from a low of 82 per cent to a high of 95 per cent and a total average reliability check of 89 per cent. Subject No. 2 was checked during observation eight times and during those observations the reliability ranged from 84 per cent to 97 per cent. This resulted in an average reliability check of 88 per cent. Subject No. 3's observation sessions were checked fifteen times during Phase I. The reliabilities on the checks ranged from 80 per cent to 92 per cent and averaged 84 per cent reliability for Phase I. Subject No. 4's observations were checked ten times during Phase I and the reliability ranged from 80

TABLE NO. 3

AVERAGE INTER-OBSERVER RELIABILITIES DURING EACH PHASE

	No. of Checks	Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI	Totals
Subject No. 1	Average % of Agreement	7	13		9	5		34
		89	97		92	99		94
Subject No. 2		8	15		11	9		43
Chris		88	93		91	96		92
Subject No. 3		15	7					22
Karl		84	86					85
Subject No. 4		10	11	7	12	6	3	49
		83	85	93	92	90	97	90
Subject No. 5		12	10		11	14		47
		83	89		92	96		90
Totals		52	56	7	43	34	3	195
		85	90	93	92	95	97	91

per cent to 87 per cent for an inter-observer reliability average of 83 per cent. Subject No. 5's observations were checked twelve times during Phase I and ranged from a reliability low of 81 per cent to a reliability high of 85 per cent. These observations resulted in an average reliability during this phase of 83 per cent.

Phase II. (Praise and Ignore)

Subject No. 1's reliability checks were conducted thirteen times during this phase. The reliability during this phase varied from a low of 94 per cent to a high of 100 per cent and a reliability average of 97 per cent. Subject No. 2 received fifteen reliability checks during Phase II which ranged from a reliability low of 87 per cent to a reliability high of 99 per cent and averaged out to a Phase II reliability of 93 per cent. Subject No. 3 left the school system during this phase, but while present received seven reliability checks which ranged from a low of 81 per cent to a high of 92 per cent and averaged out to a Phase II reliability of 86 per cent. Subject No. 4 received eleven reliability checks during this phase. The reliability ranged from a low of 80 per cent to a high of 91 per cent and averaged out to a Phase II reliability of 85 per cent. Subject No. 5 received ten reliability checks during Phase II. They ranged from a low of 82 per cent to a high of 96 per cent and averaged out to a Phase II reliability of 89 per cent.

Phase III. (Token Reinforcement)

Only Subject No. 4 took part in this phase. During this phase

Subject No. 4 received seven reliability checks ranging from a low of 89 per cent to a high of 97 per cent. The average inter-observer reliability for Phase II was 93 per cent.

Phase IV. (No Consequation)

Subject No. 1 received nine reliability checks during this phase. They ranged from a low of 88 per cent to a high of 96 per cent. The reliability average for Subject No. 1 was 92 per cent. Subject No. 2 received eleven reliability checks during Phase IV. They ranged from a low of 84 per cent to a high of 97 per cent. The average reliability for Phase IV for Subject No. 4 was 91 per cent. Subject No. 3 was no longer in the study during this phase. Subject No. 4 received twelve reliability checks during Phase IV. They ranged from a low of 86 per cent to a high of 100 per cent. The average reliability for Subject No. 5 was 92 per cent.

Phase V. (Praise and Ignore)

Subject No. 1 received five reliability checks during Phase V. They ranged from a low of 97 per cent to a high of 100 per cent. The average reliability for Subject No. 1 was 99 per cent. Subject No. 2 received nine reliability checks for Phase V. They ranged from a low of 94 per cent to a high of 100 per cent and had a reliability average of 96 per cent. Reliability observations for Subject No. 4 were conducted six times during Phase V. They ranged from a low of 88 per cent to a high of 93 per cent and resulted in a reliability average of 90 per cent. Four reliability observations were conducted for

Subject No. 5 and resulted in a reliability low of 91 per cent to a high of 99 per cent. The average reliability for Subject No. 5 was 96 per cent.

Phase VI. (Token Reinforcement)

Subject No. 4 was the only subject to go through Phase VI. The reliability observation for Subject No. 4 ranged from a low reliability of 96 per cent to a high of 97 per cent. There were three observations and the reliability average for Phase VI was 97 per cent.

During the duration of experimental conditions there was a total of 247 observation periods. Inter-observer reliability checks were conducted during 195 of these observation sessions with an average reliability of 91 per cent.

Rate of Disruptive Behavior

The rate of disruptive behavior is treated subject by subject in order that the results may be more clearly described.

Subject No. 1 (George).

The frequency rate of George's disruptive behavior is found in Figure 1. The type of disruptive behaviors during each phase is summarized in Table 4.

Phase I. (Baseline)

Was in effect for five sessions. Rate stabilized quickly at approximately 7.9 disruptions per minute. Subject No. 1 was absent on the third day of the study. Average disruptive behaviors during this phase occurred at the following rate per minute: Out of seat .2; physical contact .8; audible noise 1.5; 90° turns 2.3; vocalization 1.6 and other deviant behaviors 1.5.

Phase II. (Praise and Ignore)

Began with session six and ended with session twenty-five. Subject was absent on the nineteenth and twenty-third day of the study. Subject No. 1 reacted immediately to the praise and ignore technique and fell from a high rate of 8.2 disruptions per minute to a 5.6 rate within two days. On the eleventh day there was a slight increase in rate of disruption to a 6.3. A fire drill occurred just prior to the observation session. The rate dropped quickly the following day and began to stabilize on the thirteenth day. There were two slightly inordinate rises in disruptive behavior on the twentieth day and the twenty-fourth day. This can probably be explained by the subject's absence on the preceding days. The rate stabilized at approximately

1.8 disruptions per minute.

The various types of disruptive behavior during Phase II show marked decrease from the baseline condition. Out of seat behavior was down .1 disruptions per minute. Physical contact was down .5 disruptions per minute, audible noise fell .8 disruptions per minute, 90° turns were down 1.3 disruptions per minute and other deviant behaviors were down 1.3 disruptions per minute.

Phase III. (Token Reinforcement)

This phase was not conducted as subject had achieved acceptable levels of behavior during Phase II reinforcement.

Phase IV. (No Consequation)

Began with session twenty-six and ended with session forty. The rate of disruptive behavior stabilized during this phase at approximately 6.5 disruptive behaviors per minute. During the twenty-fifth and twenty-ninth sessions there was only moderate increase in disruptive behavior. On the thirtieth day the behavior rose sharply and continued to rise daily until a steady state of behavior was reached at approximately the thirty-third day. Most of the types of disruptive behavior rose substantially during this phase although they never reached their previous baseline rates. Out of seat behavior rose .1 disruptions per minute, physical contact rose .3 disruptions per minute, 90° turns fell .1 disruptions per minute, vocalization rose .1 disruptions per minute and other deviant behaviors rose .6 disruptions per minute.

Phase V. (Praise and Ignore)

As soon as the praise and ignore technique was reinstituted there was a sharp drop in disruptive behavior. This phase began on the forty-first day and terminated on the fiftieth day. The steady rate of behavior was reached on approximately the forty-first day of the study at about 1.7 disruptions per minute. The various types of disruptive behavior dropped considerably from Phase IV, out of seat behavior was down on an average of .1 disruptions per minute, physical contact was down .4 disruptions per minute, 90° turns were reduced .5 disruptions per minute, vocalization was down .3 disruptions per minute and other deviant behaviors were down .6 disruptions per minute.

Phase VI. (Token Reinforcement)

Phase VI was not put into effect since Phase V had proven to be sufficiently successful.

Figure 1 RATE OF DISRUPTIVE BEHAVIOR PER MINUTE FOR GEORGE

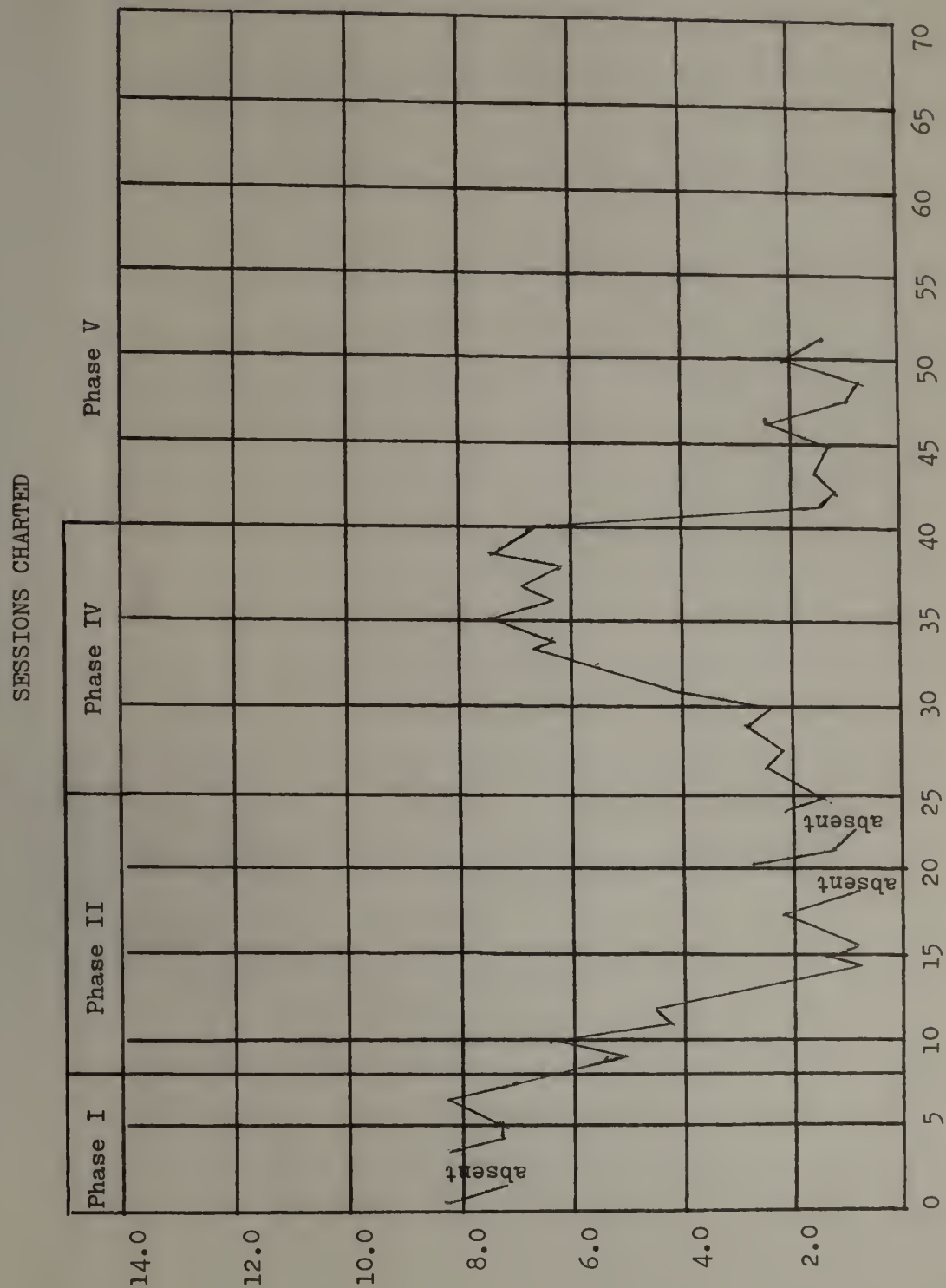


TABLE 4

AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR GEORGE

	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Out of Seat	.2	.1		.2	.1	
Physical Contact or Disturbing Others	.8	.3		.6	.2	
Audible Noise	1.5	.7		1.0	.6	
90° Turn	2.3	1.0		.8	.3	
Vocalization	1.6	.7		.8	.5	
Other Deviant Behavior	1.5	.2		.8	.2	

DISRUPTIVE BEHAVIOR CLASSIFICATIONS

Subject No. 2 (Chris).

The cumulative data on the frequency rate of Chris's disruptive behavior is found on Figure II. The types of disruptive behaviors during each phase is presented on Table 5.

Phase I. (Baseline)

Phase I (baseline) was in force from session one through session eight and seemed to stabilize almost immediately at approximately 9.9 disruptive behaviors per minute. The types of disruptive behaviors as shown in Figure II averaged as follows: out of seat behavior 1.0 per minute; physical contact 1.3 per minute; audible noise 2.1 disruptions per minute; 90° turns 2.1 disruptions per minute; vocalization 1.6 disruptions per minute and other disruptive behaviors 1.8 per minute.

Phase II. (Praise and Ignore)

Phase II was in force for sessions nine through twenty-five. The rate stabilized after a period of ten days of reinforcement at approximately 1.8 disruptive behaviors per minute. During the decline from baseline rate to the stabilized rate of the reinforcement phase there was a period of two observations when the rate of disruptive behavior began to rise. This rise in disruptive behavior occurred at the same time as the enrollment of a new boy in class whose seat was placed directly beside Chris's seat. During phase two there was a decline in all types of disruptive behavior. Out of seat behavior declined .6 disruptions per minute, physical contact declined .8

disruptions per minute, 90° turns declined 1.0 disruptions per minute, vocalization declined .7 disruptions per minute and other deviant behaviors declined 1.1 disruptions per minute.

Phase III. (Token Reinforcement)

Phase III was not conducted as praise and ignore techniques had resulted in sufficient declines in disruptive behavior.

Phase IV. (No Consequation)

Phase IV began with session twenty-six and continued until session forty-eight. The subject was absent from session twenty-six to session thirty-one and therefore no charting was possible during those days. The rate increased to a stable rate of approximately 10.1 which was slightly above the original baseline rate. On the fortieth day of the study there was a marked decrease in disruptive behavior for which the examiner has no explanation. The disruptive behavior types in phase IV all showed impressive gains from the phase II conditions. Out of seat behavior was up .5 disruptions per minute, physical contact was up 1.3 disruptions per minute, audible noise was up .3 disruptions per minute, 90° turns rose .6 disruptions per minute, vocalizations rose .8 disruptions per minute and other disruptive behaviors rose 1.5 disruptions per minute.

Phase V. (Praise and Ignore)

Phase V began with session forty-four and ended with session fifty-seven. A stabilized rate was established very quickly at about

1.5 disruptive behaviors per minute. The types of disruptive behavior in this phase were far below that of the previous phase. Out of seat behavior was down on an average of .6 disruptions per minute, physical contact was down 1.3 disruptions per minute, audible noise was down 1.0 disruptions per minute, 90° turns were reduced .5 disruptions per minute, vocalizations were down 1.0 disruptions per minute and other deviant behaviors were down 1.6 disruptions per minute.

Figure 2 RATE OF DISRUPTIVE BEHAVIOR PER MINUTE FOR CHRIS

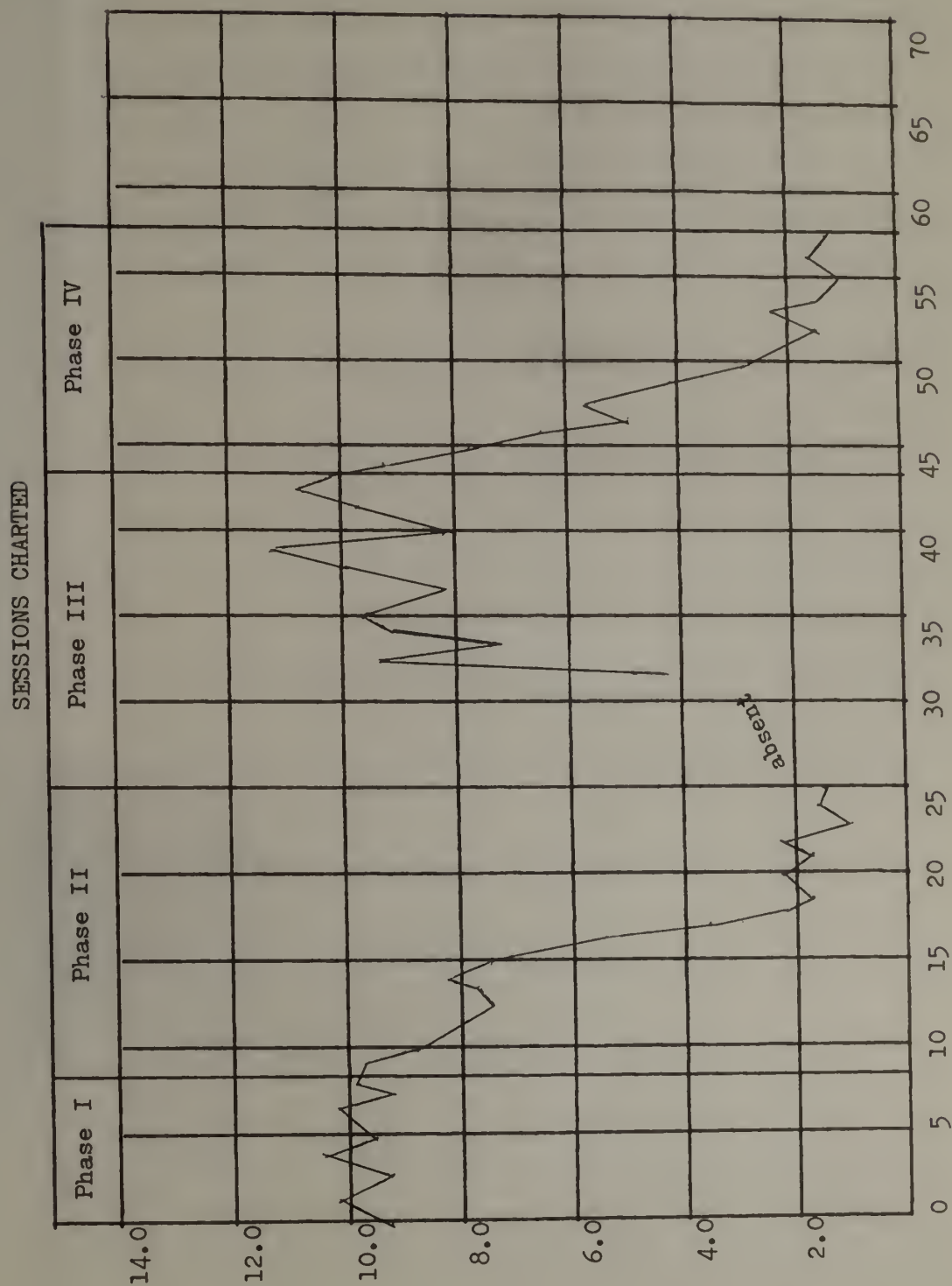


TABLE 5

AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR CHRIS

DISRUPTIVE BEHAVIOR CLASSIFICATIONS	Reinforcement					
	Phase I Baseline	Phase II	Phase III	Phase IV	Phase V	Phase VI
Out of Seat	1.0	.4		.9	.3	
Physical Contact or Disturbing Others	1.3	.5		1.8	.5	
Audible Noise	2.1	1.3		1.6	.6	
90° Turn	2.1	1.1		1.7	1.2	
Vocalization	1.6	.9		1.7	.7	
Other Deviant Behavior	1.8	.7		2.2	.6	

Subject No. 3 (Karl)

The data on the frequency rate of Karl's disruptive behavior is found on Figure 3. The type of disruptive behavior during each phase is summarized in Table 6.

Phase I. (Baseline)

Phase I was conducted from session one to session fifteen at a relatively stable baseline rate of approximately 12.0 disruptive behaviors per minute. The types of behavior during this phase had the following average rate of disruptions per minute: Out of seat 2.5 per minute; physical contact 3.6 per minute; audible noise 1.1 disruptions per minute, 90° turns .7 disruptions per minute; vocalization 1.2 disruptions per minute and other deviant behaviors 1.7 per minute.

Phase II. (Praise and Ignore)

Karl moved from the school system during this phase. Phase II began with session sixteen and ended with Karl's termination at session twenty-four. Karl's disruptive behavior dropped steadily until his termination. No stable rate was achieved. The types of disruptive behavior followed the following pattern for phase II. Out of seat behavior was down an average of .6 disruptions per minute; physical contact was down 1.5 disruptions per minute and audible noise was down .1 disruptions per minute; 90° turns and vocalizations were up .1 disruptions per minute and other deviant behaviors up 1.0 disruptions per minute. With this subject it was apparent that the more outwardly

aggressive behaviors decreased first. This trend was also noted by the teachers of the other subjects when they discussed their subjects' behaviors during Phase II.

Figure 3 RATE OF DISRUPTIVE BEHAVIOR PER MINUTE FOR KARL

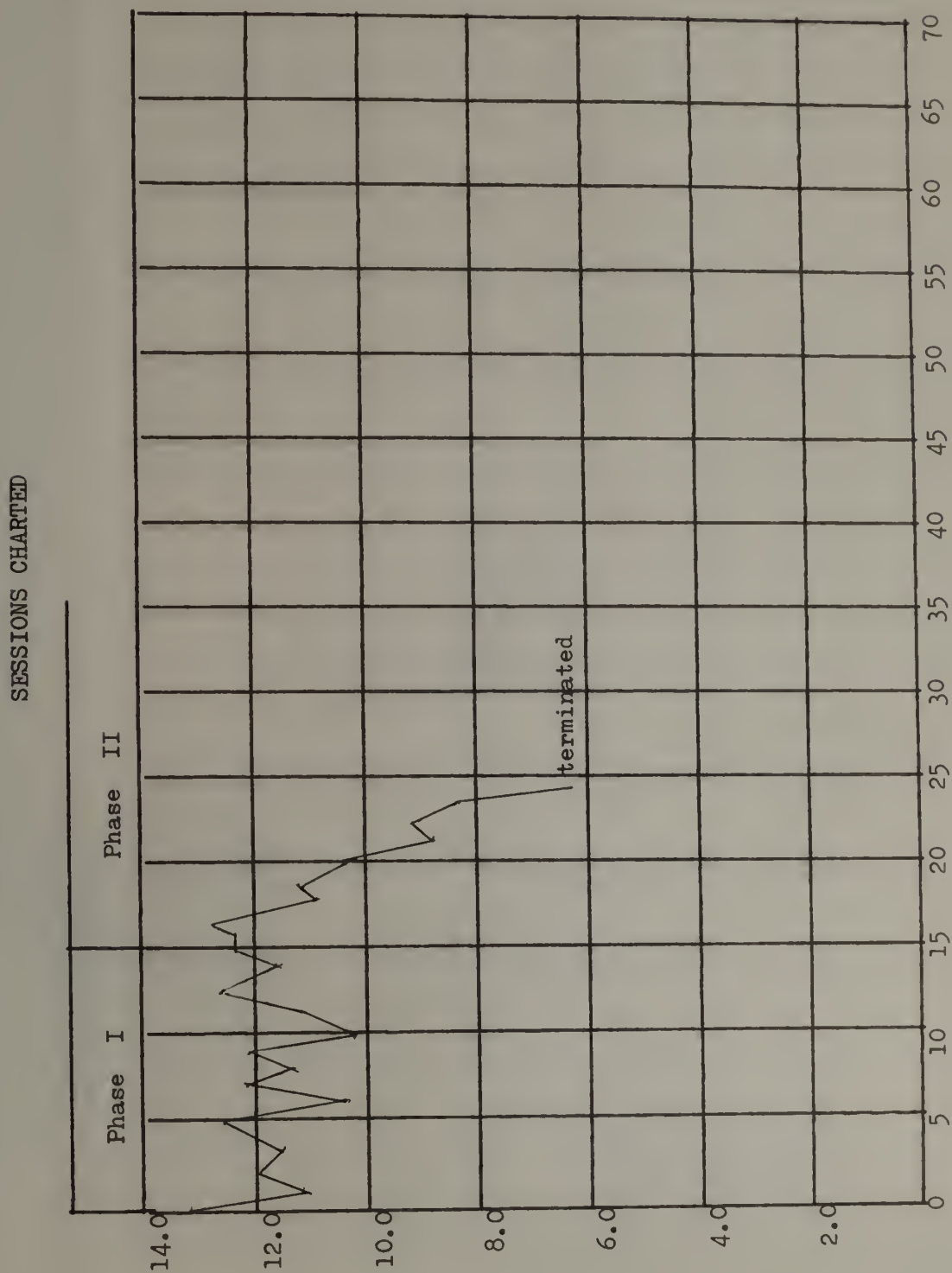


TABLE 6
AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR KARL

[illegible]

Subject No. 4 (Danny)

The cumulative data on the frequency rate of Danny's disruptive behavior is found in Figure 4. Types of disruptive behavior during each phase is presented in Table 7.

Phase I. (Baseline)

Phase I was in force from session one through ten. The rate stabilized quickly at approximately 12.2 disruptive behaviors per minute. The types of disruptive behaviors manifested during the baseline period occurred at the following rate: Out of seat 3.1 disruptions per minute; physical contact 2.2 disruptions per minute; audible noise 2.1 disruptions per minute; 90° turns 1.7 disruptions per minute; vocalization 1.4 disruptions per minute and other deviant behaviors per minute.

Phase II. (Praise and Ignore)

Phase II began with session eleven and ended with session twenty-one. The rate stabilized very quickly at approximately 10.1 disruptive behaviors per minute. The praise and ignore technique had an initial increasing effect on the rate of disruptive behavior, but by the thirteenth observation period the student began to respond positively to this approach. By the fourteenth day of observation the student's behavior began to stabilize at the previously stated rate. This rate was judged by the examiner to be high for appropriate classroom decorum and it was necessary then to implement Phase III, which

would utilize token reinforcement which was primarily a tangible rather than an intrinsic system of reinforcement. During Phase II there was some decrease in some of the types of disruptive behavior. Out of seat behavior decreased .8 disruptions per minute, physical contact decreased 1.1 disruptions per minute, 90° turns decreased .5 disruptions per minute, audible noise increased .6 disruptions per minute, vocalizations increased .4 disruptions per minute and other deviant behavior increased .8 disruptions per minute. Here again, as in the case of subject No. 3, it became apparent that there is a trend in which behaviors decrease. In this situation also it became evident that the more aggressive and disruptive type of behaviors were the ones that first began to decrease in frequency.

Phase III (Token Reinforcement)

Phase III was instituted with session twenty-two and ended with session thirty-three. A stable rate was achieved by approximately the twenty-eighth observation at about 2.3 disruptions per minute. The student responded immediately to the token system. Initially he was given tokens for every minute that there were less than eight disruptions per minute. Each day the amount of disruption allowed was reduced by one per minute until the three disruptions per minute level was reached. On the twenty-sixth and twenty-seventh day of observation there was a slight rise in disruptive behavior. This rise in behavior probably occurred as a result of a delay in handing out the token reinforcements during those two days.

The types of disruptive behaviors decreased their rate drastically from Phase II during this phase. Out of seat behavior was down 2.1 disruptions per minute, physical contact was down .4 disruptions per minute; audible noise was reduced 2.1 disruptions per minute; 90° turns were reduced .9 disruptions per minute, vocalizations were down 1.4 disruptions per minute, and other deviant behaviors were down 1.5 disruptions per minute.

Phase IV. (No Consequation)

Phase IV was in force beginning on session thirty-four and ending on session forty-five. The rate began to stabilize at about 11.8 disruptive behaviors per minute. This phase should have been run a few days longer in order to be definitely sure that a stable rate was achieved. The teacher, however, was adamant in her insistence to reintroduce reinforcement and therefore, rather than risk jeopardizing the entire study the examiner submitted to teacher pressure. During Phase IV there was one rather drastic drop in student behavior which was probably caused by the presence of the Audio-Visual man in the room. During the observation period he unwittingly mentioned to the subject that he would need him to return some film to the office in about five minutes. The subject's disruptive behavior decreased immediately, but since it was late into the observation session it does not show up as significantly as it might.

The rate of the different types of disruptive behavior increased enormously from Phase II during this phase. Out of seat behavior increased 2.0 disruptions per minute, physical contact increased .8

disruptions per minute, audible noise increased 1.6 disruptions per minute, 90° turns increased 1.2 disruptions per minute, vocalizations increased .9 disruptions per minute and other deviant behaviors increased .5 disruptions per minute.

Phase V. (Praise and Ignore)

Phase V began with session forty-seven and ended with session sixty. During this phase a stable rate was never established although the drop in disruptive behaviors was showing a definite trend toward stabilization at a rate of about 6.0 disruptive behaviors per minute. Observation session forty-eight showed a drastic rise in disruptive behavior which occurred the morning following the arrest of Danny's father for drunken driving. The rate of the various types of disruptive behavior again showed the trend of the more aggressive behavior decreasing first. Out of seat behavior was down 1.1 disruptions per minute, physical contact was down .6 disruptions per minute, audible noise was down .7 disruptions per minute, 90° turns were down .2 disruptions per minute, vocalization rose .1 disruptions per minute and other disruptive behaviors remained the same at 1.6 disruptions per minute.

Phase VI. (Token Reinforcement)

Phase VI began on session sixty-one and ended on session sixty-six. The rate stabilized almost immediately at 2.0 disruptions per minute. As soon as the subject was told that he would again be

receiving tokens he dropped to a 2.2 rate of disruptive behavior, It was evident from this phase especially that a tangible reward system was a highly successful approach for this particular subject. The types and rate of disruptions for this subject dropped markedly from Phase V. Out of seat behavior was down 1.0 disruptions per minute, physical contact was down .8 disruptions per minute, audible noise was down 1.2 disruptions per minute, 90° turns were down 1.1 disruptions per minute, vocalizations was down 1.1 disruptions per minute and other deviant behaviors were down .7 disruptions per minute. During this phase it was interesting to note that there was no need to establish a descending criteria for the earning of tokens. Behavior went immediately below the acceptable level which had been established in Phase III.

Figure 4 RATE OF DISRUPTIVE BEHAVIOR PER MINUTE FOR DANNY

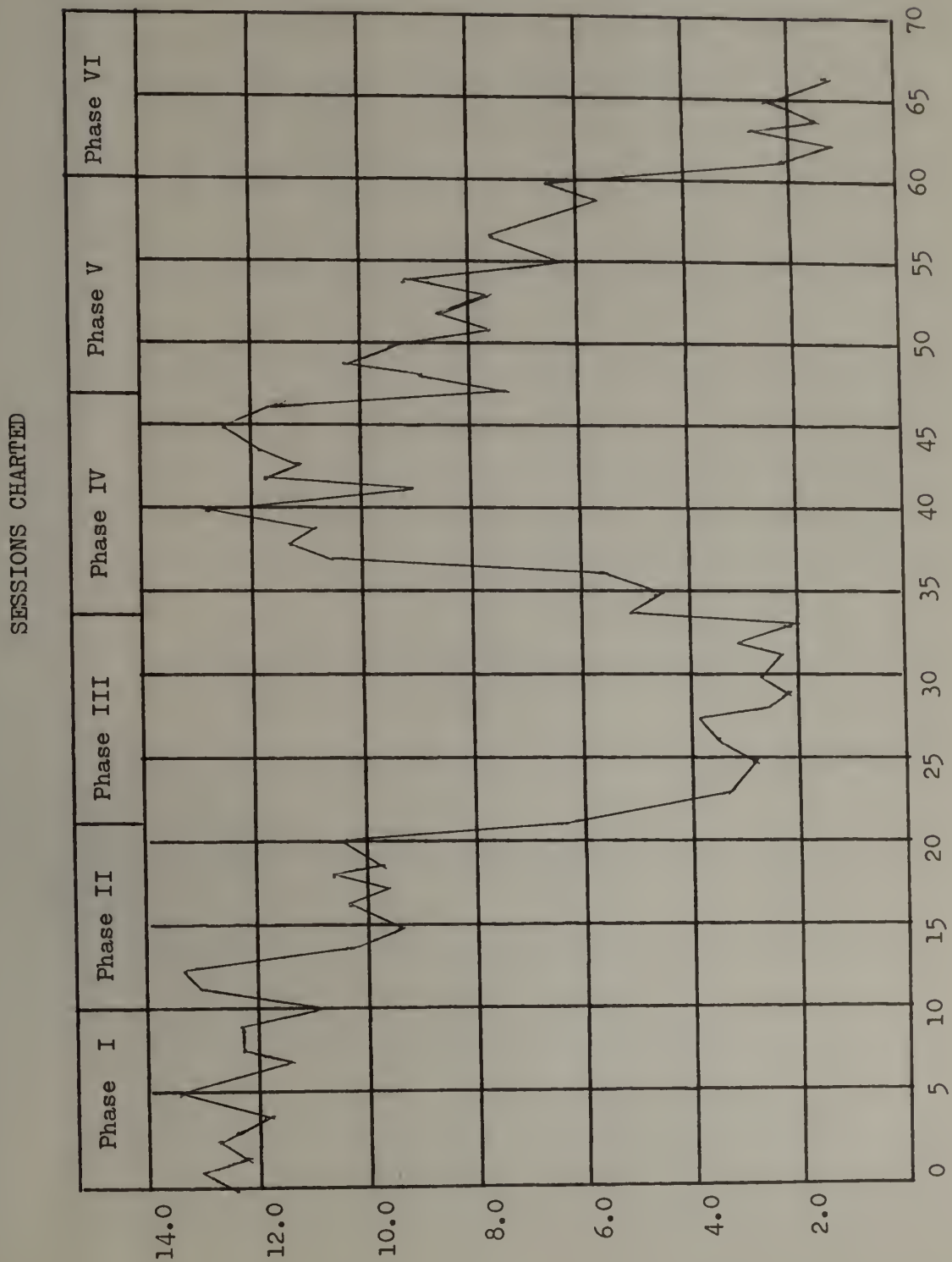


TABLE 7
AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR DANNY

DISRUPTIVE BEHAVIOR CLASSIFICATIONS	AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR DANNY					
	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Out of Seat	3.1	2.3	.2	2.2	1.1	.1
Physical Contact or Disturbing Others	2.2	1.1	.7	1.5	.9	.1
Audible Noise	2.1	2.7	.6	2.2	1.5	.3
90° Turn	1.7	1.2	.3	1.5	1.3	.2
Vocalization	1.4	1.8	.4	1.3	1.4	.3
Other Deviant Behavior	1.8	2.6	1.1	1.6	1.6	.9

Subject No. 5 (Linda)

The frequency of this subject's disruptive behavior is found in Figure 5 and the types of disruptive behavior are found in Table 8.

Phase I. (Baseline)

Phase I was in force from session one to session twelve. Baseline was established at approximately 10.3. During this phase it was interesting to note the behavior of the subject when the observer was in the room. On the first day the subject engaged in relatively few disruptive behaviors considering her eventual baseline. On the second day after getting no attention whatsoever from the observer she resorted to her most disruptive behavior of this phase at about 12.2 disruptions per minute. After trying both approaches to attract the attention of the observer she thereafter ignored her for the remainder of the experiment. During the baseline phase the types of disruptive behavior had the following rates per minute: Out of seat behavior .8; physical contact .7; audible noise 3.0; 90° turns 2.4; vocalization 2.0; and other disruptive behaviors .6.

Phase II. (Praise and Ignore)

Phase II was in force from session eleven to session twenty-six. Baseline was established at approximately 2.4 disruptive behaviors per minute. On the fifteenth day of observation the subject was absent. The rate of disruptive behavior showed an initial rise. However, it seemed that once the student began to visibly react to praise, her rate

of disruptive behavior began to decrease. The various types of disruptive behavior showed consistent reductions in their rate, with the exception, however, of other disruptive behaviors which remained steady at .6. Out of seat behavior dropped .6 disruptions per minute, physical contact dropped .3 disruptions per minute, audible noise dropped 1.4 disruptions per minute, vocalization was down .8 disruptions per minute.

Phase III. (Token Reinforcement)

Phase III was not instituted with this subject due to the success of Phase II.

Phase IV. (No Consequation)

Phase IV began on session twenty-six and ended on session forty-one. A stable rate was established at approximately 11.8 disruptive behaviors per minute. The subject did not immediately respond to this phase, but once she did her behavior rose sharply and seemed to stabilize for several days. After this period her behavior again rose rapidly and surpassed her baseline behavior. It seemed to the observer as if the subject was attempting to get Phase II reinstituted, but in failing this she would then escalate to even more disruptive behavior. The various types of disruptive behavior increased their frequency rate substantially over the previous phase. Out of seat behavior increased .4 disruptions per minute; physical contact increased .3 disruptions per minute; audible noise increased 1.5 disruptions per minute; 90° turns increased .9 disruptions per minute, vocalization increased 1.1 dis-

ruptions per minute and other disruptive behaviors increased .1 disruptions per minute.

Phase V. (Praise and Ignore)

Phase V was in force from session forty-two to session sixty. The rate stabilized at about 2.1 disruptive behaviors per minute on the last five days of this phase. The decline in behavior was steady during this period, but there were two plateaus which can only be accounted for by teacher behavior which will be discussed in the next subsection. The various types of disruptive behavior decreased their rate substantially during this phase. Out of seat behavior dropped .4 disruptions per minute, physical contact dropped .4 disruptions per minute, audible noise dropped 1.7 disruptions per minute, 90° turns 1.3 disruptions per minute, vocalization dropped .9 disruptions per minute, and other disruptive behaviors dropped .4 disruptions per minute.

Figure 5 RATE OF DISRUPTIVE BEHAVIOR PER MINUTE FOR LINDA

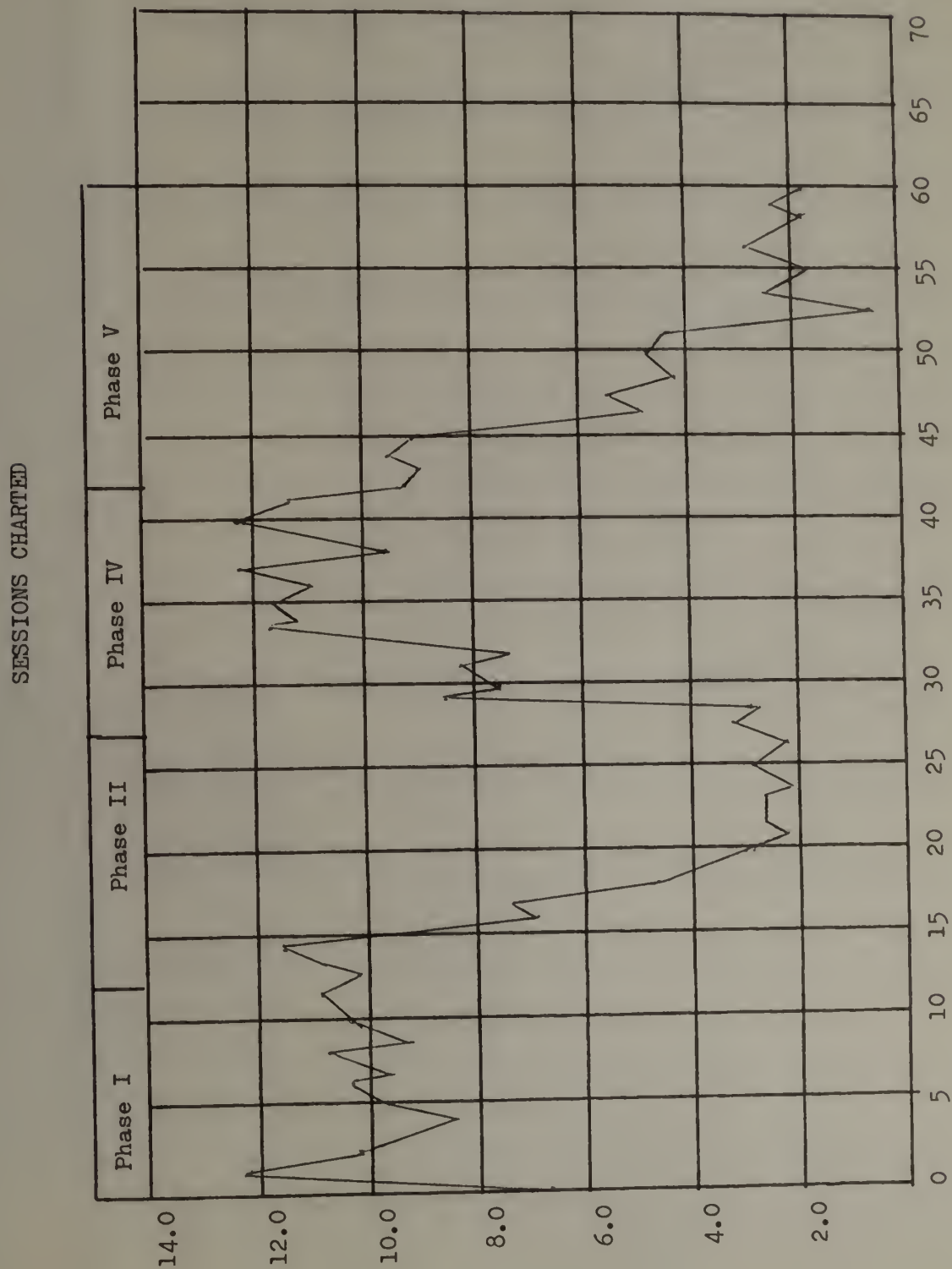


TABLE 8
AVERAGE RATE OF DISRUPTIVE BEHAVIORS PER MINUTE FOR LINDA

	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Out of Seat	.8	.2		.6	.2	
Physical Contact or Disturbing Others	.7	.4		.7	.3	
Audible Noise	3.0	1.6		3.1	1.4	
90° Turn	2.4	1.4		2.3	1.0	
Vocalization	2.0	1.2		2.2	1.3	
Other Deviant Behavior	.6	.6		.7	.3	

Teacher Behavior

The behavior of the teachers remained under good control throughout experimental conditions. The ratings of teacher behavior were obtained to clarify the relationships between change in teacher behavior and change in child behavior and also to insure that experimental conditions were being followed. Tables 9, 10, 11, 12 and 13 indicate frequency rates for the teacher behavior for each child studied.

Phase I. (Baseline)

During this phase all teachers were asked to continue their behavior prior to the admission of the observers to the classes. Teacher A was responsible for both George and Karl during observation sessions. George's class followed immediately after Karl's and judging from the amount of discrepancy between the negative teacher contact for Karl and George it seemed that there was an inconsistency in the amount of attention paid to each child's disruptive behavior. When this question was posed to the teacher she indicated that even though George's behavior was disruptive it did not bother her nearly as much as Karl's more aggressive behavior. She said she was simply happy for any kind of reduction in disruptive behavior.

Teacher B noted that she was initially very uncomfortable with the observer in the room and mentioned that she was not using nearly as many negative comments toward Chris as she previously had done. This might be pointed up by the Phase IV (no consequence) period when her negative comments doubled in intensity from her original baseline.

In the baseline phase all of the teachers used predominantly more negative comments to control their class than positive comments. The one exception to this of course was Teacher B whose case was described above.

Phase II. (Praise and Ignore)

During this phase teachers were instructed to ignore all disruptive behavior unless it became physically dangerous. All of the teachers reduced their negative contacts substantially. During this phase, nowever, Teacher A found it extremely difficult not to comment negatively on Karl's behavior. She did, however, make decided effort to increase her positive comments substantially above the negative ones which very likely accounts for the steady drop in Karl's disruptive behavior. During this phase all of the teachers' contact of a neutral type remained relatively constant from the baseline period which would indicate that neutral teacher contact was not a decisive factor in reducing disruptive behavior.

Phase III. (Token Reinforcement)

Phase III involved only Teacher C. During this phase her positive comments rose .8 times per minute which was the same as from baseline to the first reinforcement. It appears from this data that the greater the decrease in disruptive behavior the more vigorously the teachers apply positive verbal reinforcement.

Phase IV. (No Consequation)

This phase demonstrated the success of the experiment and the effectiveness of the techniques involved. The teacher behaviors

returned generally to those of the baseline condition. Teacher A had some initial difficulty in refraining from using positive comments on a frequent basis as she had in the previous phase. When this was called to her attention she simply stated, "It's a shame to kick a gift horse in the mouth." Thereafter she attempted to return to baseline condition.

Teacher C began to apply more positive reinforcement and decreased her negative comments during the thirty-sixth and thirty-seventh day of the session which caused a reduction in the rise of disruptive behavior for Danny during these sessions. When she was made aware of this she made a conscious effort to return to her baseline condition and subsequently Danny's disruptive behavior rose sharply.

Phase V. (Praise and Ignore)

Teacher behavior during this phase returned to the Phase II condition and below almost immediately. Teachers were extremely consistent in administering praise comments and were seemingly much more aware of the appropriate times to administer them. This was evidenced by the increased praise comments and the even lower levels of disruptive behavior than had been achieved in Phase II. Teacher D was absent on the forty-fourth to forty-sixth sessions and the substitute teacher was not nearly as consistent in administering praise. The effect of this change in teachers can be realized by noting the plateau in Linda's behavior during this period (Figure 8). During session forty-six a student teacher was introduced into Teacher A's room and although her role was primarily one of observation her presence seemed to have a leveling effect on Linda's

behavior (Figure 8). The observer noted in her observational notes that the student teacher had praised Linda a number of times during the above sessions when Linda was engaged in disruptive behavior. A meeting was held with the student teacher to help correct this situation and shortly thereafter Linda's behavior dropped to a stable rate.

Negative teacher contact was reduced markedly during this session from the Phase II condition. Teacher C evidenced a good deal of success during this phase with the praise and ignore technique. However, even with her increased positive contacts and reduced negative comments the rate of decline for Danny's disruptive behavior was not of sufficient speed to reach a low stable rate during the experimental conditions. It should be noted, however, that Danny's rate of disruptive behavior was decreasing steadily. The previous reinforcement phases along with more appropriate teacher contact have led to the conclusion that although still not sufficient, the praise and ignore technique was becoming a more powerful tool for decreasing Danny's disruptive behavior.

Phase VI. (Token Reinforcement)

Teacher C returned to the token system upon request. Immediately Danny's behavior dropped to a stable rate. The teacher's behavior during this period also became substantially more positive which would indicate that the enormous effect of the token system also positively modified the teacher's verbal behavior.

TABLE 9
AVERAGE TEACHER CONTACT PER MINUTE FOR GEORGE

Teacher A	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Neutral Teacher Initiated Contact	.3	.4		.2	.3	
Neutral Child Initiated Contact	.4	.3		.3	.2	
Positive Teacher Contact	.2	2.2		.5	2.3	
Negative Teacher Contact	1.3	.3		1.0	.2	

TABLE 10
AVERAGE TEACHER CONTACT PER MINUTE FOR CHRIS

Teacher B	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Neutral Teacher Initiated Contact	.3	.3		.2	.4	
Neutral Child Initiated Contact	.2	.3		.3	.3	
Positive Teacher Contact	.8	2.1		.2	2.2	
Negative Teacher Contact	.7	.3		1.4	.3	

TABLE 11
AVERAGE TEACHER CONTACT PER MINUTE FOR KARL

Teacher B	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Neutral Teacher Initiated Contact	.6	.7				
Neutral Child Initiated Contact	.2	.2				
Positive Teacher Contact	.1	2.7				
Negative Teacher Contact	3.3	1.0				

TABLE 12
AVERAGE TEACHER CONTACT PER MINUTE FOR DANNY

Teacher C	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Neutral Teacher Initiated Contact	.5	.4	.6	.4	.5	.4
Neutral Child Initiated Contact	.6	.6	.4	.7	.6	.5
Positive Teacher Contact	.2	1.2	2.0	.3	1.4	1.9
Negative Teacher Contact	2.6	.7	.3	2.4	.5	.3

TABLE 13
AVERAGE TEACHER CONTACT PER MINUTE FOR LINDA

Teacher D	Phase I Baseline	Phase II Reinforcement	Phase III Reinforcement	Phase IV No Consequation	Phase V Reinforcement	Phase VI Reinforcement
Neutral Teacher Initiated Contact	.3	.2		.2	.2	
Neutral Child Initiated Contact	1.4	.8		1.5	.6	
Positive Teacher Contact	.2	1.4		.1	1.6	
Negative Teacher Contact	2.7	.6		2.8	.4	

The reduction in disruptive behaviors enabled the teachers to spend more time giving the children individual attention during the reinforcement phases. The teachers had time to correct and return the children's work promptly thus giving them immediate feedback. The immediate feedback probably contributed along with the social and token reinforcements to the maintenance of appropriate behavior.

It became evident that any adult who entered the room became immediately a potentially powerful reinforcer. This was demonstrated in a very clear manner by the changes which occurred in the various pupils behavior when at different times the Audio-Visual man, substitute teacher and student teacher were present during observation sessions. It appears that adults who interact with the children in the primary classes situation should carefully monitor their responses to each child and especially so when in the classrooms that contains the highly disruptive children. If care is not taken to monitor adult behavior it is reasonable to assume, judging from the implications of the experimental conditions that the student progress will be slower and more irregular.

In the initial reinforcement phases it was evident with all subjects and especially with Danny that the environment of the primary class abounded with many natural reinforcers such as: play materials, snack times, outdoor play, special games and activities. Because of this wealth of reinforcers it often was difficult for the social reinforcement to be of sufficient power to offset the natural reinforcers within the room. The students learned very quickly that these natural reinforcers were not used as contingencies for appropriate responses.

It would seem that to do so would be a very positive and powerful tool to elicit appropriate academic and social behaviors. Ferster (1966) has distinguished between natural and arbitrary reinforcers and pointed out that the use of natural reinforcers is much stronger and more appropriate than arbitrary reinforcers because while providing a powerful enough reward for maintaining appropriate behavior, natural reinforcers also provide for the opportunity to satisfy the children's curiosity drive.

C H A P T E R I V

DISCUSSION

Changes in Children

Subject No. I - George.

George had a very stable baseline rate during the baseline phase. He reacted immediately during the reinforcement phase to the social reinforcement and even when the no consequence phase was instituted there was a period where George attempted to maintain his previous behavior. It was the feeling of the teacher that George's behavior had generalized to play situations. He was now able to play more cooperatively with the other children. George's cooperative play patterns demonstrate an effect which has been noted previously, (Allen, Henke, Harris, Baer and Reynolds, 1967) which is that reduction of maladaptive behaviors simultaneous with the shaping of appropriate behaviors often correlate with other favorable changes in the child's behavioral repertoire and cooperative play.

The teacher now describes George as an extremely well behaved young man whose behavior is not in the least aggressive. She further states that his academic work has shown marked improvement. This of course may be related to the increased amount of individual attention which she is now able to give him.

Subject No. II - Chris

During the initial stages of the reinforcement phase it was necessary for the teacher to use shaping in order to employ any type

of social reinforcement with Chris. The teacher had to reward successive approximations for appropriate behavior. This technique showed definite success with Chris as evidenced by the gradually diminishing rate of disruptive behavior during the first four days of phase one. Once it was possible to reinforce Chris solely for appropriate behavior his behavior took a sharp decline. It is apparent from Chris' protocol that with some children rules about appropriate behavior are not enough, it is necessary to in fact teach appropriate behavior utilizing shaping and modeling procedures.

Subject No. III - Karl

Karl was not present for the completion of the experimental conditions, however, I believe it is of interest to note that on the day his mother came to pick him up from school she remarked that in the past seven or eight days she had seen a drastic change in Karl's behavior at home. She mentioned that he seemed to be responding to her in a more appropriate way and was attempting to do things which please her. She mentioned that when she made no comment about his appropriate behavior he would attempt to verbally elicit a positive response from her. Although this change cannot be directly attributed to the experiment, I believe it is reasonable to assume that the coincidence of the events is strong enough to infer that there was a good deal of correlation between what was occurring at school with what was occurring at home.

Subject No. IV - Danny

The token reinforcement system which was necessary to utilize with Danny brought his disruptive behavior down to a very acceptable level. There was, however, some very important findings which were noted while using the token system. When the teacher initially began to use the token system she did not utilize social reinforcement along with the token system. This in itself did not seem to be important, but as the study progressed it became apparent that there was very little generalization of behavior to other situations in which tokens were not used. Later in the study this was noted by the examiner and the teacher was asked to utilize differential social reinforcement at all times. Once social and token reinforcement were combined it seemed in the opinion of the teacher, observer and examiner that there was an increase in the generalization of behavior to other situations. Since the above impressions were not measured it is not possible to make definite judgments regarding their authenticity, however, it is possible to state the following opinion: A token system is usually designed to make more usual social reinforcers effective for children and to lead to the elimination of the token system. In order that a token system might serve its purpose it is important that it be paired with social reinforcement. In this way social reinforcement might possibly become a potentially more powerful reinforcer and lead to the eventual elimination of the token system.

Subject No. V - Linda

The greatest change in Linda's behavior was her increased ability to work alone. Prior to the study she needed and demanded one to one attention. The teacher found it necessary to reward Linda initially only in close proximity. The social reinforcement had little effect on Linda's disruptive behavior if it was administered from any other part of the room. As the study progressed the teacher began moving further and further away until such time as it was possible to effectively reward Linda from any place in the room. Linda is now able to play and work in groups without teacher supervision. The former aggressiveness has now given away to a more acceptable type of aggressiveness which has established her as a class leader.

All of the teachers have indicated that at the beginning of the study they would gladly have traded any of the subjects in order that their classrooms could be more easily controlled. Now it is their feeling that not only are the subjects not unusually disruptive, but the general behavior of each classroom has improved to such a point that the teachers feel they are having their most successful year.

Teacher Reactions

Teacher A prior to the experimental conditions generally maintained control through scolding and loud critical comments. Most every situation of crisis was handled by threats of an extreme nature. When praise and ignore was implemented as the basis for classroom control this teacher felt that it would be a disaster even though she had heard and read a great deal about operant and learning principles. At the completion of the study Teacher A approached the examiner and

stated "I'm a believer, I wouldn't return to my former methods of discipline for all the tea in China."

Teacher B engaged in approximately an equal amount of positive and negative pupil contact during baseline condition, but this had very little effect on subject No. 2 (Chris's) disruptive behavior. This was due to the non contingent delivery of praise during baseline.

Continuing discussions with the teacher helped her overcome this problem and subsequently the evidence was seen in the drastic drop in subject No. 2 (Chris's) behavior during the reinforcement phases.

Teacher C attempted to implement experimental conditions as well as she possibly could, but her initial problem as was pointed out previously was that her tolerance for disruptive behavior was far above that normally considered acceptable. In Phase V it became evident that the teacher was attempting to reduce her own tolerance of disruptive behavior, This was evidenced in the continual moderate decrease in Danny's behavior. The experimental conditions, however, could not run indefinitely, however, and therefore it was necessary to use the token system again. The teacher has indicated since the termination of the study that she would no longer accept the level of disruptive behavior which she had once tolerated. She also indicated that her reason for acceptance of such high levels of disruptive behavior had been simply because she could not stand the thought of constantly nagging the children. She had never believed there could be a more effective way. She has since discontinued the token system for Danny and from the casual observance of the examiner it appears that she is maintaining his very low level of disruptive behavior, using differential social reinforcement.

Teacher D was more effective from the very beginning in using social reinforcement. She demonstrated a ready grasp of the procedures and had excellent results. Since the end of the study she has taken to teaching the children how to chart their own behavior both socially and academically. It is apparent from her behavior that she has found a more effective and rewarding way of teaching.

It would appear from this study that the teachers' differentiated responsiveness is the crucial variable in determining how a youngster behaves. It would also appear that regardless of what child development theories a teacher follows the deciding factor is her behavior and the utilization of appropriate reinforcement techniques. Successful behavior modification depends on correct teacher-child interaction.

Other Variables

The results of the experiment demonstrate that effective control was established over the disruptive behavior of the subjects. The implementation of praise and token reinforcements as consequences for appropriate behavior established and maintained high degrees of acceptable behavior. The need for the token reinforcement system and the additional factors involved in the changes in student behavior, however, seems to be a result of some uncontrolled variables and requires elaboration.

During the reinforcement session, using verbal praise, Teacher C considered the level of disruptive behavior to be close to an acceptable level. She had a great capacity for tolerating disruptions in the class as long as it didn't physically interfere with her work with an

individual child. Also in making judgments about following the classroom rules, she was much more lenient than the examiner would deem appropriate. Her frame of reference would likely have fostered the reinforcement of disruptive behavior, and would have left the level of improvement at a low level if a token system had not been instituted.

Implications

The term "emotionally disturbed" which was used to describe the children taking part in the experiment at present has no practical implications for educational methodology and its use provides the teacher with no useful information for the amelioration of the problem. In addition to not being a useful educational term there is reason to believe (Eachus, 1970) that the practice of labeling may serve to restrict the range of a student's potential accomplishments in school and elsewhere if such labels are misused. Since teacher behavior has been shown to be one of the most powerful factors in determining student behavior it is reasonable to assume that the term "Emotional Disturbance" with all of its frightening implications may have a truly devastating effect on the behavior of a teacher toward a child so labeled. This would be especially true with the majority of regular class teachers who have no training or understanding of the actual ramifications involved in such a label.

It is evident from the data that the so called "emotionally disturbed" children now enrolled in regular classes can be adequately served in their present situations if the teachers of these classes receive training in operant and social learning principles and will

consistently apply them. Behavior modification can be utilized by school systems throughout the nation because it requires no highly paid specialists or expensive apparatus. What is required, is the motivation and training to provide an adequate and appropriate environment for disruptive children within the confines of his classroom. Since the majority of children who are "socialization failures" do not now receive any special services and since it has been shown that these children can be appropriately served within the regular classroom, it would seem that behavior modification represents one viable alternative to special classes, exclusion from school and residential schools. The successful use of volunteer aides in this experiment as trained behavioral observers provides additional impetus for the adoption of behavioral principles within school systems because it entailed little cost.

The use of video tape as a training device in this experiment was particularly beneficial because it provided for immediate feedback, it allowed for pertinent replay of difficult charting situations and it increased markedly the proficiency of the observers. Video tape should be a consideration for use in all observer training because it allows for in-depth analysis of observer skills and in addition, it frees the classroom from disruptions during the observers in training.

Although it has been proven successfully that the disruptive behavior of "emotionally disturbed children" is possible to control within a regular classroom situation it would be valuable to ascertain definitely what effects this control would have on the students' academic performance. Such an experiment would also find it important to

ascertain if certain teaching methodologies have a higher criterion for success with disruptive children.

Several teachers noted that there were certain student reactions to the amount and types of social reinforcements used at various times. It would be of great value to ascertain if there is a relationship between levels of disruptive behavior and types of social reinforcers. Such a study would supply if successful much needed information to practitioners regarding schedules, types and amounts of reinforcers for various levels of behavior. An experiment of this sort would place increased emphasis on the role of behavioral measurement and utilization in schools and would increase the efficiency of teacher behavior.

This experiment, while providing an alternative to present methods, also adds further confidence to the fact that teachers can be taught to utilize systematic procedures to gain more appropriate behavior from their students. Unless teachers are effective in getting their children to behave properly their technical teaching skills will be wasted.

The success of behavior modification at the classroom level has been clearly demonstrated and leads to the generalization that such success can be replicated at the program level. The implications of this generalization is one that should be investigated by administrators if they are committed to excellence. Use of behavior principles at the program level will require that administrators receive in-depth training as behavior analysts and that they will be able to instruct and guide their staffs in the use of behavioral principles. It will mean that they, (along with their staffs) will find it necessary to articulate student group, and individual goals in measurable terms. Administrators

will need to be actively involved in the recording of observable behavior and from this data they will be required to shape and model teacher behavior to help achieve the appropriate student goals. Administrators will find it imperative to be actively involved in the total instructional scheme in order to test the reliability of their data gathering procedures.

Teachers will discover that they no longer are solely responsible for determining the educational program of their students but that it is a team decision made on the basis of demonstrated needs. They will be aware that they, as well as the students, will be trying to achieve appropriate behavior and they will also discover that competence can be described in measurable terms.

The decision to institute behavior modification on the program level is conceptually exciting but will require a total commitment of the educational team to realize its full potential for significant change. Administrators, teachers and parents are constantly being deluged by educators' latest announcements of "new" techniques, "revolutionary" approaches and "radical" reorganizations of the learning processes and are understandably skeptical of any claim. As Shakespeare wrote in Henry VII:

His promises were, as he then was, mighty:
But his performance, as he is now, nothing.

The promises of many valid developments in education have been dashed on the rocks by lukewarm acceptance and inadequate in-service training. With an appropriate degree of commitment and quality of teaching, behavior modification will have a positive effect on the lives of all children in our schools.

REFERENCES

- Altman, K. I., & Linton, T. E. "Operant Conditioning in the Classroom Setting: A Review of the Research." Journal of Educational Research, 1971, 64(6), 277-286.
- Andrews, Henry B. "The Effects of Group Contingent Reinforcement on Student Behavior." Dissertation Abstracts International, 1971, 32 (1-A), 227-228.
- Barrish, Harriet H., Saunders, Muriel, & Wolf, Monroe M. "Good Behavior Game: Effects of Individual Contingencies for Group Consequences on Disruptive Behavior in a Classroom." Journal of Applied Behavior Analysis, 1969, 2, 119-124.
- Bower, E. M. "The Education of Emotionally Handicapped Children, Sacramento, California State Dept. of Education, 1961.
- Broden, M., Hall, R. V., Dunlap, & Clark, R. "Effects of Teacher Attention and a Token Reinforcement System in a Junior High School Special Education Class." Exceptional Children, 1970, 36, 341-349.
- Caplan, G. (Ed.) Prevention of Mental Disorders in Children, New York, Basic Books, 1961.
- Clark, M., Lachowicz, J., & Wolf, M. "A Pilot Basic Education Program for School Dropouts Incorporating a Token Reinforcement System." Behavioral Research and Therapy, 1968, 6, 183-188.
- Cowen, E. L., Gardner, E. A. & Zax, M. "Emergent Approaches to Mental Health Problems," New York: Appleton Century Crafts, 1967.
- Dyer, V. "An Example: Reinforcement Principles in a Classroom for Emotionally Disturbed Children." Exceptional Children, 1968, 34, 597-599.
- Engel, Mary "Public Education and the Emotionally Disturbed Child." Journal of Child Psychiatry, 111, 1964, 617-37.
- Evans, G. W., & Oswalt, G. L. "Acceleration of Academic Progress Through the Manipulation of Peer Influence." Behavior Research and Therapy, 1968, 6, 189-195.
- Glavin, J. P., Quay, H. C., & Werry, J. S. "Behavioral and Academic Gains of Conduct Problem Children in Different Classroom Settings." Exceptional Children, 1971, 37(6), 441-446.

- Graubard, Paul, S., "The Relationship Between Academic Achievement and Behavior Dimensions." Exceptional Children, Summer 1971, 755-757.
- Hall, R. V., Fox, R. Willard, D. Goldsmith, L., Emerson, M., Owen, M., Davis, F., & Porcia, E. "The Teacher as Observer and Experimenter in the Modification of Disputing and Talking-Out Behavior." Journal of Applied Behavior Analysis, 1971, 4, 141-149.
- Hall, R. V., Lund, D., & Jackson, D. "Effects of Teacher Attention on Study Behavior." Journal of Applied Behavior Analysis, 1968, 1, 1-12.
- Hall, R. V., Panywan, M., Rabon, D., & Broden, M. "Instructing Beginning Teachers in Reinforcement Procedures which improve Classroom Control." Journal of Applied Behavior Analysis, 1968, 1, 315-322.
- Haring, N. G., & Phillip, E. L. "Analysis and Modification of Classroom Behavior." Englewood Cliffs, New Jersey, Prentice Hall, Inc. 1972, p. 12.
- Heitzman, A. J. "Effects of a Token Reinforcement System on the Reading and Arithmetic Skills Learnings of Migrant Primary School Pupils." Journal of Educational Research, 1970, 69, 455-458.
- Herman, S. H., & Tramontana, J. "Instructions and Group Versus Individual Reinforcement in Modifying Disruptive Group Behavior." Journal of Applied Behavior Analysis, 1971, 4, 113-119.
- Hernstein, R. J. "Superstition: A Corollary of the Principles of Operant Conditioning." In Operant Behavior: Areas of Research and Application, edited by Werner K. Honig, pp. 33-51, New York, Appleton-Century Crafts, 1966.
- Hewett, F. M. "Educational Engineering with Emotionally Disturbed Children." Exceptional Children, 33, 1967, 459-467.
- Hewett, F. M., Taylor, F. D., & Artuso, A. A. "The Santa Monica Project: Evaluation of an Engineered Classroom Design with Emotionally Disturbed Children." Exceptional Children, 1969, 35, 523-529.
- Hewett, F. M. The Emotionally Disturbed Child in the Classroom, Boston, Allyn & Bacon, 1968.
- Hilgard, E. R. Hypnotic Susceptibility, New York, Harcourt, Brace and World, 1965.
- Kounin, J. S., & Obradovic, S. "Managing Emotionally Disturbed Children in Regular Classrooms: A Replication and Extension." Journal of Special Education, 1968, 2, 129-135.

- Kubany, Edward, "Here's How To Take The Put Downs Out of Praise." Teacher, Sept. 1972, 47-86.
- Kuypers, D. S., Becker, W. C., & O'Leary, K. D. "How to Make a Token System Fail." Exceptional Children, 1968, 35, 101-109.
- Lazarus, A. A., "Behavior Therapy, Incomplete Treatment and Symptom Substitution." Journal of Nervous and Mental Disease, 1965, 140: 80-86.
- London, P., "The Modes and Morals of Psychotherapy, New York; Holt, Rhinehart & Winston, 1964.
- Lovitt, T. C., & Curtiss, K. A. "Academic Response Rate as a Function of Teacher and Self-Imposed Contingencies." Journal of Applied Behavior Analysis, 1969, 2, 49-53.
- Madsen, C. H., Jr., Becker, W. C., & Thomas, D. R. "Rules, Praise, and Ignoring: Elements of Elementary Classroom Control." Journal of Applied Behavior Analysis, 1968, 1, 139-150.
- Martin, M., Burkholder, R., Rosenthal, T. L., Tharp, R. G. & Thorne, G. L. "Programming Behavior Change and Reintegration into School Milieu of Extreme Adolescent Deviates." Behavior Research & Therapy, 1968, 6, 371-383.
- McAllister, L. W., Stachowiak, James G., Baer, D. M., & Conderman, L. "The Application of Operant Conditioning Techniques in a Secondary School Classroom." Journal of Applied Behavior Analysis, 1969, 2, 277-285.
- Morse, W. C. "Disturbed Youngsters in the Classroom." Today's Education, 58, 30-37, April, 1969.
- Morse, W. C. "Public Schools and the Disturbed Child." Intervention Approaches in Educating Emotionally Disturbed Children. P. Knoblock (ed.), Syracuse, N. Y.; Syracuse University, 1966, pp. 113-128.
- Morse, W. C., Cutler, R. L. & Fink, A. H. "Public School Classes for the Emotionally Handicapped, A Research Analysis," Washington, D. C. The Council for Exceptional Children, National Education Association, 1964.
- Noffsinger, T. "The Effects of Reward and Level of Aspiration on Students with Deviant Behavior." Journal of Exceptional Children, 37, 1971, 355-364.

- O'Leary, K. D., & Becker, W. D. "Behavior Modification of an Adjustment Class: A Token Reinforcement Program." Exceptional Children, 1967, 33, 637-642.
- O'Leary, K. D., Becker, W. C., Evans, M. B., & Saudargas, R. A. "A Token Reinforcement Program in a Public School: A Replication and Systematic Analysis." Journal of Applied Behavior Analysis, 1969, 2, 3-13.
- O'Leary, K. D., & Drabman, R. "Token Reinforcement Programs in the Classroom: A Review." Psychological Bulletin, 1971, 15(6), 374-378.
- Packard, R. G. "The Control of Classroom Attention: A Group Contingency for Complex Behavior." Journal of Applied Behavior Analysis, 1970, 3, 13-28.
- Peterson, R. B., Cox, M. A., & Bijou, S. W. "Training Children to Work Productively in Classroom Groups." Exceptional Children, 1971, 37, 491-500.
- Premack, David, "Toward Empirical Behavior Laws, " 1. Positive Reinforcement Psychological Review, 77, 1959: 219-33.
- Prentice, B. S. "The Effectiveness of Group Versus Individual Reinforcement in Shaping Attentive Classroom Behavior." Dissertation Abstracts International, 1971, 31.
- Quay, H. C., Werry, J. S., McQueen, M., & Sprague, R. L. "Remediation of the Conduct Problem Child in the Special Class Setting." Exceptional Children, 1966, 32, 509-515.
- Rachman, S. "Introduction to Behavior Therapy." Behavior Research and Therapy, 1963, 1:3-15.
- Ramp, E., Ulrich, R., & Dulaney, S. "Delayed Timeout as a Procedure for Reducing Disruptive Classroom Behavior: A Case Study." Journal of Applied Behavior Analysis, 1971, 4, 235-239.
- Reese, Ellen, P. The Analysis of Human Operant Behavior, Dubuque, Iowa: William C. Brown Co. Publishers, 1966, p. 13.
- Risley, T. R. "The Effects and Side Effects of Punishing the Autistic Behaviors of a Deviant Child." Journal of Applied Behavior Analysis, 1968.
- Schmidt, G. W., & Ulrich, R. E. "Effects of Group Contingent Events Upon Classroom Noise." Journal of Applied Behavior Analysis, 1969, 2, 171-179.

- Shapiro, G. M. "A Programmed Learning Approach to the Modification of Disruptive Classroom Behavior." Dissertation Abstracts International, 1971, 31(8-A), 3970.
- Sidman, Murray, *Tactics of Scientific Research*, New York: Basic Books, 1960.
- Simmons, J. Q. III, & Lovaas, O. I. "Use of Pain and Punishment as Treatment Techniques with Childhood Schizophrenics." Journal of Applied Behavior Analysis, 1969, 2, 143-157.
- Skinner, B. F. *Science and Human Behavior*, New York, MacMillan, 1953.
- Staats, A. W., Minke, K. A., Goodwin, W., & Landeen, J. "Cognitive Behavior Modification: "Motivated Learning" Reading Treatment with Subprofessional Therapy-Technicians." Behavior Research and Therapy, 1967, 5, 283-299.
- Swift, M. S., & Spivack, G. "Clarifying the Relationship Between Academic Success and Overt Classroom Behavior." Exceptional Children, 1969, 36, 99-104.
- Thomas, D. B., Becker, W. C., & Armstrong, M. "Production and Elimination of Disruptive Classroom Behavior by Systematically Varying Teacher Behavior." Journal of Applied Behavior Analysis, 1968, 1, 35-45.
- Thomas, D. A., Nielsen, L. A., Kuypers, D. S., & Becker, W. C. "Social Reinforcement and Remedial Instruction in the Elimination of a Classroom Behavior Problem." Journal of Special Education, 1968, 2, 291-305.
- Ward, M. H., & Baker, B. L. "Reinforcement Therapy in the Classroom." Journal of Applied Behavior Analysis, 1968, 1, 323-328.
- Washington, B. B. Youth in Conflict: Helping Behavior-Problem Youth in a School Setting. Chicago, Illinois, 1963.
- Wasik, B. H., Senn, K., Welch, R. H., & Cooper, B. R. "Behavior Modification with Culturally Deprived School Children: Two Case Studies." Journal of Applied Behavior Analysis, 1969, 181-194.
- Whelan, R. J. & Gallagher, P. A. "Effective Teaching of Children With Behavior Disorder." *Instructional Improvements Behavior Modification*, N. G. Haring & A. H. Haydn (eds.), Fort Steilacoom, Washington: Child Study and Treatment Center, 1968, pp. 164-198.
- Wolpe, J. *Psychotherapy by Reciprocal Inhibition*, Stanford, California, Stanford University Press, 1958.

Wolpe, J. "The Comparative Clinical Status of Conditioning Therapies and Psychoanalysis, The Conditioning Therapies, J. Wolpe, A. Salter & L. J. Regna (eds.), New York, Holt Rinehart and Winston, 1964, 5-16.

Woody, R. H. "Behavior Therapy and School Psychology." Journal of School Psychology, 1966, 4, 1-14.

Zimmerman, E. H., & Zimmerman, J. "The Alteration of Behavior in a Special Classroom Situation." Journal of the Experimental Analysis of Behavior, 1962, 5(1), 59-60.

